CONFERENCE CALLS, INFORMATION ASYMMETRY, AND GOVERNANCE
STRUCTURE

By

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This study presents an empirical analysis of the relation between a set of corporate

governance mechanisms and the quality of voluntary disclosure practices, as surrogated

by conference call activity. We hypothesized that effective governance structure helps

alleviate agency costs and foster an environment of greater transparency. We also

hypothesized that an ex-ante commitment to more transparent disclosures enhances the

effectiveness of both internal and external control mechanisms and allows the use of less-

costly control systems.

Empirical analysis yielded a number of interesting results. Initiation of (and

commitment to use) conference calls was associated with decreases in long-term bid-ask

spreads, and increases in institutional ownership, after controlling for confounding effects

and simultaneity bias.

We also found that firms with effective governance mechanisms are more

transparent. More specifically, firms with a smaller board size, a higher percentage of

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outside directors on the board, a higher percentage of institutional ownership and more shareholder-empowering charter and bylaw provisions were more likely to use conference calls as part of their communication strategy.

Finally, conference call firms were negatively associated with the level of equity incentives needed to motivate managers. Results suggest that conference calls reduce agency costs, by enhancing the efficiency of direct control mechanisms and thereby substituting for more costly governance systems such as equity compensation.

Findings extend academic research by furthering our understanding of the link between financial disclosure decisions and corporate governance structure. Recent financial disclosure scandals emphasize the need for effective governance mechanisms and greater financial disclosure transparency. The study shows that the two are linked and that financial disclosures affect (and are affected by) the resulting governance structure.

Financial information plays a significant role in mitigating agency problems and enhancing the effectiveness of both internal and external control mechanisms. Sound financial disclosures enable investors to monitor the managers and take actions to ensure that incentives are compatible. Board of directors relies on high-quality information to perform its monitoring duties. Similarly, institutional investors rely on public information to assess management performance and prevent management from engaging in opportunism. Yet, the quality of information produced, disseminated, and analyzed is a product of the governance process. Information has value and managers have private incentives to withhold and distort information. Maintaining or increasing information asymmetries allows managers to hide failure, incompetence, and abuses; and to seek rents in the form of either insider trading or expropriation of wealth (Edlin and Stiglitz, 1995).

In recent years, a wave of financial accounting scandals has shaken investor confidence in the reliability of accounting disclosures. A number of prominent companies (e.g., Worldcom, Enron, Tyco) have admitted to (or have been charged with) hiding or distorting information for the purpose of presenting a more favorable picture of their status. This type of "creative accounting" resulted in significant loses for investors and creditors which in several cases, amounted in the billions of dollars. Following these scandals, the U.S. Congress, the Securities and Exchange Commission (SEC), and the major stock exchanges have taken steps to increase financial disclosure transparency,

focusing on corporate boards as a vehicle for improving the quality of financial information disclosed by firms.

The recent financial scandals and regulatory reforms suggest that agency costs and the efficacy of governance mechanisms are directly related with disclosure decisions and the propensity of managers to withhold or distort information. While there is substantial theoretical and empirical research on stock market motives for disclosure decisions, and on market consequences of voluntary disclosure, there is limited research on the role of voluntary disclosure in the governance process. A major reason for this is that much of the theoretical research on voluntary disclosures is based on the underlying assumption that manager and shareholder incentives are perfectly aligned. However, the interactions between voluntary disclosures and corporate governance structure must be studied in order to understand the total picture of disclosure practices. Our study is a step to that direction.

We empirically investigate the relation between a set of corporate governance mechanisms and the quality of voluntary disclosure practices, especially conference call activity. Over the last decade, conference calls have become an increasingly important venue for managers to communicate information to the financial markets. Unlike other types of voluntary disclosures, the regular use of quarterly conference calls by management constitutes an ex-ante commitment to transparency. The use of quarterly conference calls can therefore be interpreted as an explicit willingness by management to provide additional information to investors.

First, we examined long-run capital market consequences of conference calls. The literature on public disclosures suggests that a commitment to more transparent

disclosures could decrease a firm's cost of raising capital, increase a firm's stock liquidity, and improve intermediation for a firm's stock. Restricted access to conference calls, and the heated controversy surrounding the use of semi-public channels of communications before regulation fair disclosure (herafter, reg-FD), suggests that the economic benefits identified with public disclosures may not necessarily hold for conference calls. Whether the above economic benefits apply to semi-public conference calls is an empirical question and the focus of our study.

Second, we explored the role of corporate governance structure (as expressed by corporate boards, corporate charter and bylaws, and institutional ownership) on the disclosure decision. Our hypothesis is that effective corporate governance mechanisms are needed to induce the manager to disclose his private information. To this end, we addressed the following question: Are firms with more effective corporate governance mechanisms more transparent, and therefore more likely to use conference calls?

Finally, we analyzed the relation between conference calls and stock-based incentives. Stock-based compensation is an important, but costly, internal control mechanism. Stock-based compensation links managers' wealth to firm performance and helps align managers' and owners' incentives. The tradeoff arises from the fact that risk is imposed on a risk-averse manager who must be compensated for the additional risk. Voluntary disclosure practices can complement stock-based incentives by increasing the price informativeness, and thus can help reduce contracting costs. On the other hand voluntary disclosures can also substitute for more costly governance mechanism by reducing information asymmetry and agency costs and enhancing the efficiency of the overall control mechanism.

Our results support most of the hypotheses tested. Evidence suggests that economic benefits identified with public disclosures continue to hold for semi-public conference calls (before reg-FD), that firms with more effective governance structure are more likely to use conference calls as part of their communication policy, and that conference calls substitute equity incentives as a control mechanism. No evidence suggested that managers with higher equity incentives are more likely to use conference calls.

CHAPTER 2
BACKGROUND ON CONFERENCE CALLS

Introduction

Prior studies on voluntary disclosures used several proxies to capture a firm's disclosure policy, including management earnings forecasts (Ajinkya et al., 2005), analyst rankings of firms' disclosure practices (Lang and Lundholm, 1993), and self-constructed measures (Botosan, 1997). Each proxy has advantages and disadvantages.

Management earnings forecasts have been widely used in prior research and have several advantages as a disclosure proxy. Management estimates can be precisely measured, and the realization of actual earnings and analysts' forecasts provide benchmarks that allow researchers to assess their accuracy, as well as their pessimistic or optimistic bias. In addition, the timing of the disclosure is typically known. As a result, it is possible to perform powerful tests on the market reaction to, motives for, and consequences of voluntary disclosures. However, there are also potential problems with using management forecasts as a proxy for a firm's disclosure policy. First, management forecasts are only a small part of a firm's overall disclosure policy and exclude a lot of information disclosed through the financial statements and through direct contacts with analysts. Second, unlike other types of voluntary disclosures, the realization of actual earnings allows the market to ex-post evaluate the accuracy and timing of these forecasts. As a result, the incentives for management forecasts are likely to be different from those of other types of voluntary disclosures.

Analysts' rankings of disclosure policies provide a more-comprehensive measure of voluntary disclosures than do management earnings forecasts. Disclosure practices for a number of industries are evaluated by leadings analysts in each industry who provide aggregate and disaggregate rankings of firms' disclosure efforts. The annual survey assigns scores to firms based on various aspects of disclosures, including annual reports, 10-Q, 10-K, quarterly reports, segment information, and voluntary disclosures provided through direct contacts with analysts and investor relations. Analysts' specialization in the industry makes them qualified to assess a firm's disclosure policy; and the annual rankings cover all disclosures, including annual reports and analyst meetings. However, the sample of firms covered is restricted to large and widely followed firms in few industries. As a result, a large number of small- and medium-sized firms and a number of industries are not represented in the annual report. The rankings are based on within-industry evaluations, and are not really suitable for across-industry comparisons. It is also unclear whether analysts have the appropriate incentives to take the ratings seriously, thereby causing biases and errors to the ratings. Finally, the annual rankings are not available after 1995, which makes recent investigations of disclosure policy impossible.

Self-constructed metrics of voluntary disclosures are normally created from items included or not, in annual financial reports and other public documents. They are more reliable than analysts' rankings, and there is increased confidence that the measure captures what is intended. However, construction of the measure involves extensive data collection and (in many cases) judgment on the part of the researcher, which makes replication of the results very difficult. Finally, self-constructed measures usually do not include disclosures provided in analysts' meetings and conference calls.

Our study used quarterly conference calls to capture a firm's disclosure policy. There are several reasons to use conference calls as a voluntary disclosure proxy. Over the past decade, conference calls have become an increasingly important venue for managers to communicate information to the financial markets. Unlike other types of voluntary disclosures, the consistent use of quarterly conference calls by management constitutes an ex-ante commitment to transparency. Using quarterly conference calls can therefore be interpreted as an explicit willingness by management to provide additional information to investors. Also, conference calls allow research on disclosure policies of small- and medium-sized firms in more recent years. Finally, the timing and initiation of conference calls is generally known, which makes it possible to perform powerful tests on changes in variables of interest. The nature and characteristics of this disclosure metric are given below.

Institutional Background

Typical conference calls occur a few hours to a few days after quarterly earnings announcements. A few days before the actual call, call participants are faxed (e-mailed) an invitation that includes the time and the phone number of the conference call. A typical call opens with the chief executive officer (CEO) and/or the chief financial officer (CFO) discussing in detail the financial performance of the company for 15 to 20 minutes. The discussion is followed by a 20 to 40 minute question-and-answer session that is organized by a moderator on a first-come, first-served basis. The sponsoring company usually controls who is allowed to ask questions during the call.

In contrast to other methods of disclosures—such as press releases, shareholder reports, and Securities and Exchange Commission (SEC) filings—disclosures through conference calls have been largely unregulated until recently. As a result, managers could

decide whether they will use conference calls and also who could have access to the call. Traditionally, conference calls were targeted to sophisticated investors such as financial analysts and money managers. A survey by the National Investors Relations Institute (NIRI, 1996b) indicates that of a sample of 147 companies that used conference calls during the period, 97% invited sell-side and buy-side analysts; and 92% and 77% invited current and potential institutional investors, respectively; while only 10% invited the media and only 22% invited individual investors.

Restricted access to conference calls (and the possible dissemination of material information during the calls) raised concerns over unfair information advantage for some investors and was a driving force behind the passage of reg-FD, promulgated in August 2000 by the SEC.[1] The SEC considered selective disclosures an unfair practice that could compromise the integrity of capital markets. In an attempt to "level the playing field" the SEC passed reg-FD that prohibits firms from disclosing material information to a select group of participants without simultaneously disclosing the same information to the public. The reg-FD received considerable attention and debate, generating nearly 6,000 comment letters in response to the proposal. Individual investors and the media generally favored the passage of regulation, arguing that selective disclosures place them at a severe disadvantage in the market. On the other hand, large brokerage firms opposed the regulation, expressing concerns over potential chilling of the information flow from issuers to the marketplace.

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[1] The law became effective in October 23, 2000. In the post reg-FD era, the vast majority of conference calls are open to all investors.

Conference Calls as a Disclosure Metric

In our study we used conference call activity before reg-FD to proxy for a firm's voluntary disclosure policy. The format and special characteristics of conference calls have several implications for their use as a disclosure proxy. First, conference calls were traditionally targeted to financial analysts and institutional investors with substantial background knowledge about the company. This allowed managers to discuss complex issues facing the company in much more detail without the fear of misinterpretation.[2] Second, in contrast to SEC filings and press releases that are closely regulated and scrutinized by auditors and attorneys, conference calls are unregulated and unscripted. This gives an opportunity to managers to elaborate on firm performance outside the normal accounting conventions, talk about the firm's strategy and future outlook, and disclose 'soft' or qualitative information.

Third, because conference calls are interactive, call participants can ask questions that address their specific information needs and information agendas. In a recent survey by the Association of Investment Management and Research (AIMR, 2001), AIMR members ranked spoken dialogue with company executives, analysts' conferences and conference calls as among the most important information sources of financial or corporate information. The findings suggest that verbal communications are essential part of the process of gathering and analyzing information about public companies.

Finally, conference calls are ex-ante commitments to voluntary disclosures. Managers commit to a disclosure policy before they observe any post- decision information. The two-way dynamic exchange of information involves the company's

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[2] One of the often-cited criticism of reg-FD by issuers is that retail (unsophisticated) investors could misinterpret the information disclosed thereby increasing the stock's volatility.

executives thinking ahead to the meeting with institutions and analysts. This has a strong influence on the formation of strategy and on internal control processes (Holland, 1998; Dye and Sridhar, 2002)). Anecdotal evidence suggests that managers spend considerable time preparing for the conference call and that they value their ability to appear prepared and confident about their company's prospects.

Previous academic studies provide additional evidence on the role of conference calls as a disclosure venue. Results by Frankel et al. (1999), Bushee et al. (2003), and Bowen et al. (2001) indicate that, on average, significant information is disclosed during conference calls and that call participants benefit from their discussion with management. Frankel et al. (1999) document higher return volatility and trading volume during the short call window relative to the time period preceding the call. The findings suggest that the market reacts to information disclosed during conference calls. Bushee et al. (2003) confirm the results of Frankel et al. in a more recent time period, partitioning conference calls into open and closed. Finally, Bowen et al. (2001) document a significant increase in the accuracy and consensus of financial analysts earnings forecasts for firms that host conference calls, indicating that the information disclosed during the call is useful to analysts.

From a research perspective, conference calls provide additional advantages. There is significant cross sectional and time series variation in the use of conference calls. This allows the study of incentives and consequences of voluntary disclosures in a large number of industries, for small- and medium-sized firms in more recent years. Furthermore, the timing and initiation of conference calls is generally known, which makes it possible to perform powerful test on changes in variables of interest. Finally,

conference calls provide the opportunity to identify firms that ex-ante commit to a disclosure policy, that is, they regularly use quarterly conference calls as a means to communicate information to the market. The ex-ante commitment aspect of voluntary disclosures is a significant focus of our study and is a property that has not been extensively examined by academic research.

There are, however, some potential problems with the use of this disclosure metric. First, the study is restricted to a binary classification of firms that either use or not use quarterly conference calls. This results in significant loss of information since the tenor of information disclosed during conference calls is likely to vary both across firms and across time periods. Second, it is unclear whether conference calls can still be viewed as voluntary disclosures, since in recent years the vast majority of large firms use conference calls as part of their communication process.

Sample Selection

Conference call data are identified from Thomson Financial First Call, an information provider to institutional investors. First Call maintains a dataset of quarterly conference call schedules from 1995 to 2003, which we used to identify firms hosting conference calls.

We begin with a sample of 78,225 quarterly conference calls. We excluded conference calls that are not within a thirty day window surrounding the earnings announcement date, so as to exclude special conference calls. This eliminates 16,794 observations. Table 1 shows the conference call activity by year. There are a total 61,429 conference call quarters spanning the period 1995-2003. A total number of 5,534 unique firms use conference calls during this time period. The table shows that there is a large increase in conference call activity around the year 2000, indicating that a number of

firms reacted to reg-FD by initiating conference calls or increasing conference call activity. Table 2-2 shows the industry distribution of conference calls based on the Fama and French industry classification. The table shows that conference call activity spans all industry classifications. The Business Services industry is the largest group with 10,094 observations, while the Coal industry is the smallest with 47 observations.

For the purpose of this study, the sample is restricted to the period from 1995 to the first quarter of 1999 for several reasons. First, starting in 1999 two other companies provide information on conference call activity, Bestcalls, and CCBN, that was not available to us. Second, a large increase in conference call activity after 1999 may be due to public pressure and managers' reaction to reg-FD. Therefore, the sample for the time period before 1999 is more likely to capture managers' efforts to voluntarily disclose information to the market and is not confounded by the controversy surrounding reg-FD. Finally, before 1999, the vast majority of conference calls are restricted to institutional investors and analysts. This provides the opportunity to examine incentives and consequences of semi-public communications.

Criteria used to select the conference call sample are the same across all parts of our study. However, the total number of conference call firms used to test the hypotheses developed differ across the chapters. This is because firms are excluded from the sample when they have missing observations on any of the control variables and other variables of interest. In each chapter, we provide a brief description of the sample selection process and the number of conference call and control firms included in the tests in that chapter.

Table 2-1. Distribution of conference call firms by calendar year

Year	Total	Firms	Mean	Initiations
1995	1594	895	1.78	895
1996	3204	1540	2.08	780
1997	4279	1986	2.15	599
1998	5251	2446	2.15	647
1999	7703	3151	2.44	739
2000	11680	4096	2.85	918
2001	12621	4314	2.93	588
2002	11961	4151	2.88	318
2003	3136	3108	1.01	50
Total	61429	25687	2.39	5534

The table presents the distribution of conference call firms by calendar year. Total is the total number of conference calls during the calendar year. Firms is the total number of unique firms using conference calls during the calendar year. Mean is the average number of conference calls per firm during the calendar year. Initiations is the first time a firm appeared in the first call database.

Table 2-2. Distribution of conference call firms by industry

FF	Industry Name	Total	FF	Industry Name	Total
1	Agriculture	124	25	Aircraft	169
2	Food Products	761	26	Shipbuilding, Railroad	141
3	Candy and Soda	106	27	Defense	94
4	Alcoholic Beverages	189	28	Precious Metals	197
5	Tobacco Products	59	29	Nonmetallic Mining	153
6	Recreational Products	394	30	Coal	47
7	Entertainment	765	31	Petrol and Gas	1964
8	Printing and Publication	601	32	Utilities	1568
9	Consumer Goods	918	33	Telecom	2331
10	Apparel	871	34	Personal Services	639
11	Healthcare	878	35	Business Services	10094
12	Medical Equipment	1706	36	Computers	3184
13	Pharmaceutical Products	2335	37	Electronic Equipment	4584
14	Chemicals	1216	38	Measuring and Control Equip.	1280
15	Rubber and Plastic Products	370	39	Business Supplies	728
16	Textiles	290	40	Shipping Containers	184
17	Construction Material	945	41	Transportation	1339
18	Construction	669	42	Wholesale	1920
19	Steel Works, etc	993	43	Retail	3708
20	Fabricated Products	184	44	Restaurants, Hotel, Motel	1134
21	Machinery	2056	45	Banking	2322
22	Electrical Equipment	711	46	Insurance	2302
23	Miscellaneous	375	47	Real Estate	181
24	Auto and Trucks	795	48	Trading	2855
				Total	61429

The table presents the distribution of conference call firms by industry. Industry definition is based on Fama & French 48 industry classification.

CONFERENCE CALLS, INFORMATION ASYMMETRY, AND INTERMEDIATION

Introduction

Over the last decade private and semi-public communications with core institutional investors and analysts have been almost as important to firms' communication strategies as public financial reports and press releases. Before reg-FD a large number of firms used conference calls to communicate information to select institutional investors and analysts. Despite this trend, there is limited literature on the economic consequences of voluntary disclosures using nonpublic channels. Instead the emphasis of the academic disclosure literature over the years has been on public disclosures where firms either publicly disclose information to all investors or withhold the information. The significant cross-sectional and time-series variation in conference call activity provides the opportunity to examine whether the economic benefits identified with public disclosures continue to hold for semi-public communications.

There is extensive theoretical and empirical research on the economic consequences of both voluntary and mandatory public disclosures. In general, research suggests that public disclosures reduce the information asymmetry between informed and uninformed investors by lowering the amount of private information relative to public information in the market. Information asymmetry creates adverse selection costs in the transactions between sellers and buyers of a firm's shares. These costs manifest in increases in the cost of capital and reductions in stock liquidity. Companies have incentives to avoid these costs by ensuring that public communications are of a high

quality. A commitment to more transparent public disclosures could lower a firm's cost of raising capital, increase a firm's stock liquidity, and improve intermediation for a firm's stock.

Firms initiating conference calls signal a commitment to increased voluntary disclosures. However, the effect of conference calls on information asymmetry is ambiguous. The SEC viewed "closed" conference calls as another form of insider trading. The impetus behind reg-FD is that selective disclosures during conference calls result in an unfair information advantage for call participants over other investors. Similarly, economic theory suggests that, if significant information is disclosed during conference calls, then the information asymmetry between the select participants and outside investors should increase and this will have an inverse effect on the firm's cost of capital and liquidity (Kyle, 1985).

Managers' decision to hold conference calls, however, indicates that the perceived benefits of these semi-public presentations outweigh their costs. Conference calls allow the exchange of information between insiders and a group of diverse institutions and analysts, and signal the willingness of insiders to be forthcoming about information events that may affect the firm. When the call participants serve as intermediaries of the information to the rest of the market then conference calls should have a positive effect on a firm's liquidity (Admati and Pfleiderer, 1988). In a series of confidential interviews with executives in large UK-listed companies, Holland (1998) reported that the case companies perceived the economic benefits of private communications to be more powerful than those arising through more direct channels such as public announcements and extended financial reports. The private contacts were used to increase a company's

credibility when releasing information so as to increase the confidence of financial institutions in the company's strategy and managerial team. These actions were expected to lead to more stable shareholding, more informative stock price, lower cost of capital, and higher liquidity.

Another factor that boosts these private contacts is a market failure for the public disclosure of information. Public release of information on competitive advantage can destroy long-term value. Therefore, managers withhold information that may affect their firms' competitiveness. Also, institutional investors are reluctant to publicly ask questions that are based on their own specific research and information advantage. Thus, private or semi-public communications allow firms and institutions to exchange information with lower transaction costs. Furthermore, soft information on imaginary future scenarios and future projections is also easier to discuss in private and semi-public forums rather than publicly where the threat of litigation is always present. Such dynamic communications allow firms to signal their value and create a following of informed investors who can properly interpret news about the firm and make sure that the stock price reflects the economic reality of the firm.

The relation between conference calls, information asymmetry and intermediation is therefore an empirical question and the focus of this chapter. Prior research (Healy et al., 1999; Leuz and Verreccian, 2000) provided empirical evidence that expanded public disclosures are positively related with liquidity, institutional holdings and analysts' coverage. To our knowledge this is the first study that examines whether these benefits extend to voluntary disclosures through semi-public channels.

Frankel et al. (1999) and Bushee et al. (2003) documented that both trade volume and price volatility are elevated during conference calls. The findings indicate that conference calls convey material information to the market, and that call participants trade on this information during the call. Similarly, Sunders (2001) showed that bid-ask spreads of restricted-access conference call firms are higher than bid-ask spreads of open-access conference call firms during the call window. These papers focused on market consequences during the short window of conference call and do not examine the long-term effects of conference calls on a firm's information environment.

We used conference calls to identify firms that commit to a policy of semi-public communications with institutional investors and analysts before reg-FD. We examined the effects of conference calls on stock liquidity, as proxied by relative bid-ask spreads, and intermediation. Time-series findings showed that conference call firms are associated with lower bid-ask spreads, and higher institutional holdings. We found no relation between conference call initiations and analyst coverage. Overall, the evidence indicates that conference calls provide significant long-term economic benefits to the firms similar to those of public disclosures. Our study contributes to the voluntary disclosure literature by showing that economic benefits associated with public disclosures continue to hold for semi-public communications.

Background and Hypotheses Development

Conference Calls and Information Asymmetry

Information asymmetry creates adverse selection costs in the transactions between sellers and buyers of a firm's shares (Akerlof, 1970). Economic theory suggests that information asymmetry can result in unwillingness to trade or an increase in a firm's cost of raising capital. When investors are differentially informed about a firm's value, then

investors with superior private information can trade profitably at the expense of the less informed (or liquidity) traders. As a result, market makers and liquidity traders "price protect" against the potential loses from transacting with informed investors.

Numerous studies (Demsetz, 1968; Copeland and Galai, 1983; Glosten and Milgrom, 1985; Lev, 1988) argued that measures of market liquidity, like bid-ask spreads, can be used to explicitly proxy for information asymmetry between informed traders and liquidity traders in the market. Bid-ask prices are set by the market makers to compensate them for the service of providing "immediacy" in the capital market. Adverse information costs arise from the market-makers disadvantage in dealing with an informed trader. Market makers lose, on average, when transacting with informed traders but recoup these losses on trades with liquidity-motivated traders. The market-makers set the bid-ask spreads so that their gains from liquidity traders will compensate for their losses to the informed traders.

Information asymmetry is an important concept in accounting theory because it provides a role for public disclosures in financial markets. Theory on disclosures suggests that a commitment to enhanced public disclosure and transparency reduces information asymmetry between insiders and outside investors, and between differentially informed investors (Diamond and Verrecchia, 1991; Kim and Verrechia, 1994; McNichols and Trueman, 1994). This is because public disclosures nullify the information advantage of privately informed traders by lowering the amount of private information relative to public information in the market.

A number of empirical papers provided evidence that is consistent with this hypothesis. Welker (1995) and Sengupta (1998) showed that firms with higher analysts'

ratings of disclosures have, on average, lower bid-ask spreads. Healy et al. (1999a) found that firms with increased analyst ratings of disclosures are accompanied by increases in stock liquidity as proxied by bid-ask spreads. Finally, Leuz and Verrechia (2000) showed that a sample of German firms that switched from the German to an international reporting regime, which has enhanced reporting requirements, have lower bid-ask spreads than firms employing the German reporting regime.

Unlike public disclosures there is considerable disagreement on the effect of conference calls on information asymmetry and stock liquidity. This is evidenced by the substantial attention to, and debate generated by, the proposal of reg-FD. The SEC considered conference calls an unfair practice (Levit, 1998) and passed reg-FD in an attempt to "level the playing field" in the market place. Individual investors and the media generally favored the passage of regulation, arguing that selective disclosures place them at a severe disadvantage in the market. On the other hand, large brokerage firms opposed the regulation, expressing concerns over potential chilling of the information flow from issuers to the marketplace. Finally, managers' decision to hold conference calls suggests that the perceived benefits of these semi-public presentations outweigh their costs. Holland (1998) reported that managers use private and semi-public communications to signal their value and increase institutional investors' confidence in the firm's strategy. Managers expect that these communications will lead to higher liquidity, lower volatility, and lower cost of capital.

Prior research has not examined the effect of using semi-public channels to disclose information. Theoretical and empirical research on the effect of informed traders on liquidity, however, can provide guidance on the effects of conference calls. Kyle (1985)

and Glosten and Milgrom (1985) demonstrated that the presence of both informed and liquidity traders creates information inequality in the market that results in higher bid-ask spreads and illiquidity. If significant information is disclosed during conference calls the information asymmetry between the select participants and outside investors should increase and this will have an inverse effect on the firm's cost of capital and liquidity.

Frankel et al. (1999) and Bushee et al. (2003) documented higher return volatility and trading volume during the conference call window relative to the time period preceding the call. Findings indicated that, on average, significant information is disclosed during conference calls and that call participants benefit from their discussion with management. In passing reg-FD, the SEC cited Frankel et al. (1999) as evidence of informed trading during conference calls and unfair information advantage of call participants. Sunders (2001) extended the research by partitioning conference call firms into open-access and restricted-access and comparing the bid-ask spreads during the conference call window one year before and after reg-FD. The paper showed that firms with restricted-access to conference calls have higher bid-ask spreads before reg-FD that disappears after reg-FD.[1] Sunders (2001) argued that restricting access to conference calls increases the information asymmetry among investors as suggested by theoretical models. The above papers, however, have not examined the long-term effect of conference calls on information asymmetry. If call participants, either through their trading (institutional investors) or through their research and recommendations (analysts), serve as intermediaries of the information to the rest of the market, then the increase in

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[1] After reg-FD the vast majority of conference calls are open to all investors.

information asymmetry could be temporary and conference calls could have a positive effect on a firm's long-term liquidity.

The Kyle (1985) paper on market depth assumes a single privately informed trader with long-lived private information that strategically exploits his information advantage over time. In the case of conference calls, information is disclosed to a number of informed traders simultaneously which violates the strong assumptions of Kyle (1985). A model of market depth more closely related to conference calls is the Admati and Pfleiderer (1988) model. The paper assumes a number of informed trades with short-lived information advantage and predicts a positive relation between the number of informed traders and market depth. This is because informed traders compete with each other in exploiting their information advantage. This competition results in faster revelation of the informed traders information and in smaller loses for the liquidity traders. Similarly, Holden and Subrahmanyam (1992) and Foster and Viswanathan (1993) assume long-lived information asymmetry and predict that an increase in the number of informed traders will tend to increase the rate at which private information is reflected in the price. Thus, market depth will be lower in the early rounds of trading when there is severe adverse selection but the effect will be reversed in later rounds when most of the private information has already been revealed.

Brennan and Subrahmanyam (1995) showed that the number of analysts following the firm is negatively associated with the information asymmetry component of bid-ask spreads. They argued that the competition among informed traders (analysts) results in lower bid-ask spreads as suggested by Adamati and Pfleiderer (1988). On the other hand, Roulstone (2003) argued that analysts reduce information asymmetry through their

research and recommendations. Roulstone (2003) showed that analyst following is positively related to liquidity while analysts' forecasts dispersion is negatively related to liquidity.

Other research showed that conference call firms are followed by a larger number of analysts than non-conference call firms (Bushee et al., 2003; Frankel et al.,1999; Tasker, 1998). Bowen et al. (1998) provided evidence that conference calls increase analysts' ability to forecast earnings accurately and decrease dispersion among analysts. Finally, Brown et al. (2003) measure information asymmetry using the Probability of Informed Trade (PIN), and show that conference calls are significantly negatively associated with the level of information asymmetry. However, the paper used a sample period around reg. FD when the majority of conference calls were open to all investors. The above findings raise the possibility that conference calls are associated with long-term reductions in information asymmetry.

The large controversy surrounding reg-FD, the disagreement among different investors, regulators, and issuers and the mixed evidence of the empirical research warrants further research on the effects of conference calls on information asymmetry. Drawing on the predictions of Admati and Pfleiderer (1988), Holden and Subrahmanyam (1992), and Foster and Viswanathan (1993), and the characteristics of conference calls, we expect conference calls to have a positive impact on market liquidity that extends beyond any temporary effects during the call window. The arguments lead to the following hypothesis:

- **Hypothesis 1**: A firm's bid-ask spread decreases in the years after initiation of conference calls.

Conference Calls and Intermediation

Managers often use corporate disclosure practices to attract institutional investors and analysts. Voluntary disclosures allow managers to signal the value of their firm and increase institutional investors' confidence in the firm's strategy. Managers have incentives to attract institutional investors because they are a major source of capital. Also, close relations with institutional investors and analysts enable managers to create a stable and informed shareholding, and ensure that major investors and analysts have a basic understanding of the company (and are not surprised by events or news affecting the company). The hope is that these relations will create a quick and informed response capability in the market, leading to more informative stock price and lower stock return variability.

Holland (1998) reported that managers perceived private meetings and semi-public presentations, like conference calls, more useful than public disclosures in cultivating these relations. Similarly, a NIRI survey in 1996 indicated that conference calls are targeted not only to current institutional investors and analysts but also to potential institutional investors. From a sample of 147 conference call companies, 77% invited potential institutional investors to listen to the conference call. The evidence suggests that conference calls are used to increase a firms' visibility and attract institutional investors and analysts.

Corporate disclosure practices are likely to affect institutional investors and analyst following for several reasons. First, prior research provided evidence that institutional investors tend to invest in firms with greater trading volume and liquidity (Gompers and Metrick, 1998). Diamond and Verrechia (1991) showed that greater disclosure reduces

information asymmetry between insiders and outsiders, which improves stock liquidity and makes it more attractive for institutional investors.

Second, institutional investors could be sensitive to corporate disclosure practices if disclosure enables them to evaluate and analyze a firm's performance more effectively and increases the potential for profitable trading opportunities. In a recent survey by AIMR (AIMR, 2000), portfolio managers and investment analysts ranked spoken dialogue with company executives, analysts' conferences and conference calls as among the most important sources of financial or corporate information. The findings suggest that verbal communications are an essential part of the process of gathering and analyzing information about public companies.

Third, disclosure practices are important to active institutional investors if they rely on the information for corporate governance activities. Bushman et al. (2000) argued that information is a critical part of effective corporate governance mechanisms. Active institutional investors are therefore more likely to follow firms that are more transparent and committed to more forthcoming disclosures.

Finally, voluntary disclosures lower the cost of information acquisition for analysts and increase the firm's visibility (Bhushan, 1989a, 1989b; Lang and Lundhom, 1996; Merton, 1987). Access to conference calls enables analysts to create valuable new information, such as superior forecasts and buy/sell recommendations, therefore increasing demand for their services.

Overall, theory suggests that managers can use corporate disclosure practices to attract institutional investors and analysts. Consistent with these predictions, Healy et al. (1999) and Bushee and Noe (2000) documented that firms with expanded voluntary

disclosures as measured by increases in analyst disclosure ratings (AIMR scores) are followed by increases in institutional ownership. Lang and Lundholm (1993) find that firms with more informative disclosures have larger analyst followings, and Healy et al. (1999) showed that firms with expanded voluntary disclosures are followed by increases in analyst coverage.

Conference calls provide certain advantages over public disclosures in attracting institutional investors and analysts. The restricted access allows managers to target institutional investors with long-term investment horizons and screen out investors who trade frequently, thereby creating a stable shareholding. Furthermore, conference calls increase the value of analysts' services, since they are the major intermediaries of the information, and could potentially increase the demand for their services. Finally, conference calls are interactive, allowing analysts and institutional investors to address their specific information agendas.

Drawing on the above findings, we expect initiations of "closed" conference calls to increase institutional holdings and analyst coverage. Our expectations are summarized in the following two hypotheses:

- **Hypothesis 2:** Institutional holdings increase in the years following initiation of conference calls.
- **Hypothesis 3:** Analyst coverage increases in the years following initiation of conference calls

Empirical Design and Regression Specification

We tested the hypotheses using a time-series (event study) analysis. One of the advantages of the event study is that using each firm as its own control through time allows the control of firm specific characteristics that are constant over time and helps isolate the effect of the event. The time-series design allows us to examine changes in the

variables of interests around initiations of conference calls and hence mitigates the possibility that some omitted variables are responsible for the observed relations. Furthermore, unlike previous studies on public disclosures, the exact time of initiations of conference calls is known and this allows more powerful tests on the consequences of voluntary disclosures. To test the hypotheses, we examined changes of bid-ask spreads, institutional ownership, and analyst coverage 2 years before and 2 years after initiations of conference calls.

Bid-Ask Spreads

To test whether bid-ask spreads are associated with changes in disclosure policy, controlling for other factors that explain bid-ask spreads, we estimated the regression in Equation 3-1:

$$spread_{it} = \alpha_0 + \alpha_1 ccall_{it} + \alpha_2 perin_{it} + \alpha_3 mv_{it} + \alpha_4 volume_{it} + \alpha_5 price_{it} + \alpha_6 stdret_{it} \\ + \alpha_7 stdturn_{it} + \alpha_8 nshareholders_{it} + \varepsilon_{it} \tag{3-1}$$

where, "spread" is the relative bid-ask spread and "ccall" takes the value "1" during the disclosure increase period (years 0 to 2) and "0" otherwise (years -2 to -1). We followed prior research and use the logarithm of all variables included in the regression.

To isolate the effect of conference calls on information asymmetry, we controlled for several factors identified in earlier studies to be associated with bid-ask spreads. The most commonly used control variables to explain bid-ask spread variation are trading volume, closing price, and stock return volatility. Trading volume ("volume") is measured as the total value of shares traded scaled by market value of equity. Trading volume is indented to provide an inverse proxy of inventory holding costs and is therefore predicted to have a negative relation with bid-ask spreads. The higher the trading volume the easier it is for the market-maker to reverse a position (Stoll, 1978).

Closing price ("Price") is the average daily closing price during the year and is used to proxy for any fixed costs of the market-makers' operations and inventory holding risk. Theory suggests a negative relation between closing price and bid-ask spreads. The standard deviation of daily stock returns ("stdret") during the fiscal year is used to proxy for inventory risk and is expected to be positively related with the bid-ask spreads.

To control for the adverse information risk of bid-ask spreads we used several control variables suggested by previous research to be related with bid-ask spreads. Firm size, measured as the logarithm of market capitalization ("mv") is used to control for the firms information environment and is predicted to have a negative relation with the spread. We followed Welker (1995) and use the standard deviation of share turnover ("stdturn"), where turnover is the percentage of outstanding shares traded daily, to proxy for the number of news events experienced by the firm. We expect this variable to have a positive effect on bid-ask spreads. The percentage of insider holdings ("perin") is used to proxy for the probability of trading with an informed insider and is predicted to have a positive relation with bid-ask spreads (Chiang and Venkatesh, 1988). Finally, the number of shareholders ("nshareholders") is used to proxy for noisy or liquidity trading and is predicted to have a negative relation with bid-ask spreads.

Intermediation

To test the second and third hypotheses, the effect of conference calls on institutional holdings and analyst following, we estimated the following two regressions:

$$
\begin{aligned}
inpct_{it} = \beta_0 &+ \beta_1 ccall_{it} + \beta_2 cumret_{it} + \beta_3 ibex_{it} + \beta_4 sgr_{it} + \beta_5 lnmv_{it} + \beta_6 dp_{it} \\
&+ \beta_7 bm_{it} + \beta_8 turnover_{it} + \beta_9 lnstdret_{it} + \beta_{10} stdroa_{it} + \beta_{11} lev_{it} + \beta_{12} beta_{it} \qquad (3\text{-}2) \\
&+ \beta_{13} sp500_{it} + \varepsilon_{it}
\end{aligned}
$$

$$numanal_{it} = \gamma_0 + \gamma_1 ccall_{it} + \gamma_2 cumret_{it} + \gamma_3 ibex_{it} + \gamma_4 sgr_{it} + \gamma_5 lnmv_{it} + \gamma_6 dp_{it}$$
$$+ \gamma_7 bm_{it} + \gamma_8 turnover_{it} + \gamma_9 lnstdret_{it} + \gamma_{10} stdroa_{it} + \gamma_{11} lev_{it} + \gamma_{12} beta_{it} \qquad (3\text{-}3)$$
$$+ \gamma_{13} sp500_{it} + \varepsilon_{it}$$

where, "inpct" is the percentage of institutional ownership, "numanal" is the number of analysts following the firm during the fiscal period and "ccall" takes the value "1" during the disclosure increase period (years 0 to 2) and "0" otherwise (years -2 to -1).

To isolate the effect of conference calls we include a large number of control variables documented by prior research to be associated with institutional ownership and analyst coverage. Firm performance has been shown to be positively associated with institutional holdings and analyst coverage (Bushee and Noe, 2000; Healy et al., 1999). We used stock returns ("cumret"), measured as returns for the 12 months ending three months after fiscal-year end, standardized earnings ("ibexm"), measured as earnings before extraordinary items scaled by market value, and sales growth ("sgr"), measured as the three year sales growth, to proxy for firm performance. The level of trading volume ("turnover"), measured as the average monthly volume over the year scaled by shares outstanding, is used to capture institutional investors and analysts preferences for more liquid stocks (Falkenstein, 1996; Bushee and Noe, 2000).

We included beta ("beta"), leverage ("lev"), measured as debt-to-assets, standard deviation of returns ("stdret"), and standard deviation of return on assets ("stdroa"), to proxy for different dimensions of firm risk. Higher levels of systematic risk and leverage are associated with higher level of institutional holdings and analyst following, while higher levels of idiosyncratic risk are associated with lower level of institutional holdings and analysts' coverage (Bushee and Noe, 2000).

Finally, we used the natural logarithm of market value ("lnmv") to control for size, book to market ("bm") to control for growth opportunities, and dividend yield ("dp") to control for institutional investors preferences for dividend yields. An indicator variable for whether the firm is listed in the S&P 500 ("sp500") index is used to control for preferences of institutional investors and analysts for firms listed in the index (Bushee and Noe, 2000; Bushee, 2001).

<div align="center">

Sample Selection and Characteristics

</div>

Conference call data are identified from Thomson Financial First Call, an information provider to institutional investors. First Call maintains a dataset of daily conference call schedules from 1995 to 2004, which we used to identify firms hosting conference calls.

The sample covers the period from 1995 through the first quarter of 1999 (i.e., the pre reg-FD period). In order to capture a long-term commitment to voluntary disclosures and exclude special, one-time conference calls, we assigned firms into the conference calls sub sample if they hold at least six quarterly conference calls over the sample period. The initiation year of conference calls (year 0) is the earliest year a firm appears in the database.

We collected daily closing bid and closing ask prices from CRSP to compute the median value of the daily percentage spread , measured as the median daily bid-ask spread as a percentage of the average bid and ask prices during the firms fiscal year. Institutional holdings and analyst followings are obtained from Spectrum and IBES respectively. All control variables on volume, stock price and returns are obtained from CRSP. Control variables on financial information are obtained from COMPUSTAT. Variable definitions and measurement are shown in Table 3-1.

The analysis is performed using both industry adjusted and unadjusted variables. Industry adjusted values are estimated for each firm as the difference between the sample firm's value and the median value for non-sample firms in the same industry.[2] Firms with missing observations on any of the control variables are excluded from the sample. We deleted observations with negative book value and market value less than a million. Finally, we avoided problems with outliers by winsoring all variables at the 1% and 99% level.

Tables 3-2 to 3-4 provide descriptive statistics for the variables used in the empirical tests. After removing observations with missing values, the final sample consists of 4,602 firm-years representing 1,055 unique conference call firms. Table 3-2 shows the distribution of firms by industry. The largest concentration is in the business services industry, where 126 firms use conference calls to communicate information.

Tables 3-3 and 3-4 present industry adjusted and unadjusted descriptive statistics for all the variables used in the analysis. The average unadjusted (adjusted) market value is 2.80 (2.58) billion dollars, the average unadjusted (adjusted) institutional ownership is 48% (28%), and on average 7.9 (6.5) analysts cover these firms. The tables show that the sample firms tend to be larger, with higher percentage of institutional ownership, larger number of analyst coverage, and lower bid-ask spreads than their respective industry medians.

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[2] We used Fama & French industry classifications to define the industry. We also performed the analysis using industry adjusted variables based on 2-digit SIC codes. The results are similar and are not reported.

Empirical Results

Univariate Analysis

In this section, we examine changes in the variables of interest in the years surrounding changes in disclosure policy. We expect institutional ownership and analyst following to increase and bid-ask spreads to decrease in the years following initiations of conference calls. Tables 3-5 and 3-6 report the mean and median industry-adjusted and unadjusted bid-ask spreads, institutional holdings, and analyst following for the sample firms in event years -2 to 2, respectively. We used a t-test and a Wilcoxon signed-ranked test to access whether there is a significant change in the mean and median for the sample firms in the years of the disclosure increase (years 0 to 2) relative to the pre-event period (years -2 to -1). We also used a t-test to and a Wilcoxon signed-ranked test to test whether the industry-adjusted mean and median of the variables of interest are significantly different from zero for each of the event years -2 to 2.

Table 3-5 shows that the mean and median industry-adjusted bid-ask spreads are significantly less than zero, while the mean and median industry-adjusted institutional ownership and analyst coverage are significantly greater than zero throughout the event period. The table also shows that the mean (median) industry adjusted relative bid-ask spreads for the sample firms are on average 2% (2%) lower than their industry peers throughout the event period. The mean (median) industry adjusted institutional holdings for the sample firms are on average 25% (25%) higher than their industry peers. Finally the mean (median) industry adjusted analyst coverage for the sample firms is 6.5 (5.5) higher than their industry peers. The evidence collaborate the descriptive statistics in Table 3-2, and shows that the sample firms are significantly larger, have higher

institutional holdings, higher analyst coverage, and lower bid ask-spreads than their industry peers.

To test the hypotheses we examined changes in the variables of interest in the years of the disclosure increase (years 0 to 2) relative to the pre-event period (years -2 to -1). The t-test and the wilcoxon signed-rank test indicate that there is a significant decrease in the mean (and median) unadjusted as well as industry adjusted bid-ask spreads, and a significant increase in the mean and median institutional holdings and analyst coverage, in the years following initiations of conference calls. The mean (median) relative bid-ask spreads for the sample firms are 2% lower than their industry peers throughout the event period but there is a 1% decrease in the standard deviation in years 1 and 2 relative to the years -2 and -1. The mean industry-adjusted institutional ownership is 32%, 29%, and 30%, in years 0, 1, and 2, respectively, compared to 20%, and 25% in years -2, and -1. Finally, the mean industry-adjusted analyst following for years 0, 1, and 2, are 6.88, 6.53 and 7.26, respectively, compared to 5.96 and 6.02 for years -2, and -1.

It is evident from the descriptive statistics and the univariate analysis that the sample firms differ significantly from their industry peers. Throughout the event period the sample firms have lower bid-ask spreads, and higher institutional holdings and analyst coverage, than their industry peers. The findings suggest that the demand for more information by institutions and analysts play a significant role in the initiations and the commitment to use conference calls to communicate information, as suggested by prior studies (Ajinkya et al., 2005). The findings also indicate that decreases in information asymmetry, and increases in institutional ownership and analyst coverage are

also important factors in the decision by managers to supply information through conference calls

Overall, the evidence is consistent with all three hypotheses in this study. We find evidence of a significant decline in relative bid-ask spreads, and significant increases in institutional ownership and analyst coverage, in the years following initiations of conference calls. However, the findings should be interpreted with caution because these tests do not control for contemporaneous changes in other factors that may affect the variables of interest.

Multivariate Analysis

To provide a more comprehensive analysis of the changes in bid-ask spreads, institutional ownership and analyst coverage at the time of the disclosure increase we estimated multivariate models for each variable of interest to control for potentially confounding effects. We estimated Eq. 3-1 to 3-3 controlling for factors that may affect the variables of interest. All variables in these models are unadjusted.[3] The "ccall" variable takes the value "1" during the disclosure increase period (years 0 to 2) and "0" otherwise (years -2 to -1). The coefficient on the "ccall" variable indicates whether there is a positive or negative change in the variable of interest accompanying the disclosure increase, after controlling for confounding factors.

The results for Eq. 3-1 are presented in Table 3-7. The model explains 84.2% of the relative bid-ask spreads and is comparable with prior studies. The intercept is negative and statistically significant indicating that the sample firms have lower bid-ask spreads than their industry peers prior to the initiation of conference calls. The coefficient on the

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[3] The analysis is also performed using industry-adjusted variables. The results are similar and are not reported.

disclosure dummy ("ccall") is negative and statistically significant. The evidence suggests that there is a significant decrease in relative bid-ask spreads in the years following initiations of conference calls. The estimated coefficients on standard deviation of returns and standard deviation on share turnover are positive and statistically significant consistent with prior studies. Similarly, the coefficients on total value of shares traded and number of shareholders are negative and statistically significant as suggested by prior research. The coefficient on stock price is negative but not significant and the coefficient on market value is positively but not statistically significant. Finally, the coefficient on insider ownership is positive but not significantly related to bid-ask spreads.

Overall, the findings are consistent with the first hypothesis of the study and indicate that initiations of conference calls contribute to long-term decreases in information asymmetry. So, even after controlling for confounding effects, initiations of (and commitment to use) conference calls to communicate information contribute to significant long-term decreases in information asymmetry as proxied by bid-ask spreads.

The results for Eq. 3-2 are presented in Table 3-8. The model explains 17.3% of the variation in market-adjusted institutional ownership and is statistically significant. The intercept is statistically positive indicating that the sample firms have higher institutional ownership than their industry peers prior to initiations of conference calls. The coefficient on the disclosure dummy ("ccall") is positive and statistically significant as expected. The evidence shows that there is a 15% increase in institutional ownership after initiation of conference calls relative to the pre-event period. The coefficient on standard deviation of stock returns and standard deviation of returns on assets are negative and statistically

significant, while the coefficients on beta and leverage are positive and statistically significant. The findings are consistent with prior research and indicate that institutional investors prefer firms with low idiosyncratic risk and high systematic risk and leverage. The coefficient on volume turnover is positive and statistically significant capturing institutional investor's preferences for more liquid stocks. The coefficients on cumulative returns, sales growth, and standardized earnings are all positive but only the latter is statistically significant. The findings provide weak evidence that institutional investors prefer firms with strong performance. The coefficient on market value and market to book ratio are both positive and statistically significant, while the coefficient on dividend yield is negative and statistically significant. Consistent with prior research institutions seem to prefer larger firms with lower growth opportunities and lower dividend yields. Finally, the coefficient on the S&P 500 dummy variable is negative but not statistically significant.

The evidence provides support for the second hypothesis of this study. Findings show that even after controlling for confounding effects, initiations and commitment to the use of conference calls is associated with significant long-term increases in institutional ownership. Institutional investors appear to prefer more transparent firms and they increase their ownership after conference call initiations.

The results for Eq. 3-3 are presented in Table 3-9. The model explains 38.3% of the variation of market-adjusted analyst coverage and is statistically significant. The intercept is positive and statistically significant indicating that the sample firms are followed by a higher number of analysts than their industry peers prior to initiations of conference calls. The coefficient on the disclosure dummy (ccall) is negative but not statistically

significant. The evidence do not support the third hypothesis of this study. The table shows that analysts prefer to follow larger firms that are included in the S&P 500 index and with higher volume turnover. The table also shows that analyst prefer to follow firms with lower sales growth and standard deviation of returns on equity. This may be because it is more difficult to estimate the earnings and provide buy/sell recommendations for these firms. Finally, the table shows that analysts follow firms with lower market performance and dividend yields.

The evidence in this table does not support the third hypothesis of the study. Initiations of conference calls are negatively related to increases in analyst coverage but they are only statistically significant.

Robustness Tests

A potential problem with the above analysis is that the three models are estimated independently and are based on the assumption that analyst coverage does not affect bid-ask spreads and institutional ownership does not affect analyst coverage. However, prior research indicates that analyst coverage is negatively related to bid-ask spreads (Brennan and Subrahmanyam, 1996; Roulstone, 2003), and institutional holdings are positively related to analyst coverage. To control for the simultaneity bias we estimated the following modifications of models (3-1) to (3-3) using 2-stage least squares:

$$spread_{it} = \alpha_0 + \alpha_1 ccall_{it} + \alpha_2 anal_{it} + \alpha_3 perin_{it} + \alpha_4 mv_{it} + \alpha_5 volume_{it} + \alpha_6 price_{it} \\ + \alpha_7 stdret_{it} + \alpha_8 stdturn_{it} + \alpha_9 nshareholders_{it} + \varepsilon_{it} \tag{3-4}$$

$$inpct_{it} = \beta_0 + \beta_1 ccall_{it} + \beta_2 cumret_{it} + \beta_3 ibex_{it} + \beta_4 sgr_{it} + \beta_5 lnmv_{it} + \beta_6 dp_{it} \\ + \beta_7 bm_{it} + \beta_8 turnover_{it} + \beta_9 lnstdret_{it} + \beta_{10} stdroa_{it} + \beta_{11} lev_{it} + \beta_{12} beta_{it} \\ + \beta_{13} sp500_{it} + \varepsilon_{it} \tag{3-5}$$

$$anal_{it} = \gamma_0 + \gamma_1 ccall_{it} + \gamma_2 inpct_{it} + \gamma_3 cumret_{it} + \gamma_4 ibex_{it} + \gamma_5 sgr_{it} + \gamma_6 lnmv_{it} + \gamma_7 dp_{it}$$
$$+ \gamma_8 bm_{it} + \gamma_9 turnover_{it} + \gamma_{10} lnstdret_{it} + \gamma_{11} stdroa_{it} + \gamma_{12} lev_{it} + \gamma_{13} beta_{it} \qquad (3\text{-}6)$$
$$+ \gamma_{14} sp500_{it} + \varepsilon_{it}$$

where, analyst coverage is included in the bid-ask spreads model and institutional ownership is included in the analyst coverage model. To enable the 2-stage least squares analysis, we estimated the relative bid-ask spread model without taking the logarithm of the variables.

The results of the second stage of Eq. 3-4 to 3-6 are shown in Tables 3-10 to 3-12, respectively. Table 3-10 shows that Eq. 3-4 explains 40.7% of the variation in bid-spreads. The coefficient on the conference call dummy is still negative and statistically significant as predicted. As predicted by prior research the coefficient on analyst following is negative and statistically significant, suggesting that analysts contribute to decreases of information asymmetry. Finally, the coefficient on insider holding becomes positive and statistically significant. This is consistent with prior research suggesting that insider holdings are associated with higher bid-ask spreads.

Table 3-11 shows that Eq. 3-5 explains 20% of the variation in institutional ownership. The coefficient on the disclosure dummy remains positive and statistically significant as predicted. In general, the results are similar to Table 3-5 except that a number of control variables are no longer statistically significant, and the coefficient on market value of equity becomes negatively related to institutional ownership.

Finally, Table 3-12 shows that Eq. 3-6 explains 41.3% of the variation in analyst coverage. The coefficient on the disclosure dummy is negative but is not statistically significant. The table shows that institutional ownership is a significant factor in analysts' decision to follow a firm as suggested by prior research. The results on the other control

variables are similar to Table 3-6, except that a number of control factors are no longer statistically significant.

Overall, the evidence in this section is consistent with hypotheses 1 and 2, but is not consistent with hypothesis 3. Initiations of (and commitment to the use) conference calls to communicate information are associated with decreases in information asymmetry, as proxied by bid-ask spreads, and increases in institutional ownership. Increases in analyst coverage after initiations of conference calls appear to be more related to increases in institutional ownership rather than the initiations of conference calls per se.

Conclusions

In this chapter, we examined the long-run effects of semi-public communications on information asymmetry and intermediation. The research question is important because unlike public disclosures there is limited research on the economic consequences of voluntary disclosures through semi-public channels. The study uses a sample period before reg-FD, where the majority of conference calls are restricted to institutional investors and analysts.

The findings suggest that initiations of (and commitment to the use) conference calls are associated with decreases in information asymmetry, and increases in institutional ownership after controlling for confounding effects and simultaneity bias. We do not find evidence suggesting that conference calls are associated with subsequent increases in analyst coverage. In general, the evidence in this chapter is consistent with prior research on the consequences of public disclosures (Healy et al., 1999; Leuz and Verrecchia, 2000). Benefits associated with public disclosures continue to hold for semi-public communications.

Evidence also suggest that the increase in information asymmetry during the conference call window documented by prior research (Frankel et al., 1999; Bushee et al., 2003; Sunders, 2001), is temporary and does not persist in the long-run. The results are consistent with Brown et al. (2003) who show that commitments to conference calls are associated with long-run reductions in information asymmetry, as proxied by the probability of informed-based trading (PIN).

Moreover, the sample firms appear to have lower bid-ask spreads and higher institutional ownership than their industry peers, throughout the event period. This suggests that initiations of conference calls may not indicate a significant change in disclosure policy but rather a natural progression of existing communication strategies facilitated by advances in technology. Nevertheless, conference calls seem to proxy for an overall attempt by managers to be more transparent.

The analysis in this chapter, raise significant questions on the incentives to use conference calls. While conference calls and voluntary disclosures in general, play a key role in capital allocation and provide significant economic benefits to investors, only a subset of firms in the economy use conference calls as part of their communication strategy. In the next chapter we argue that agency costs and the resulting governance structure play a significant role in managers' decision to be more transparent. We empirically examine characteristics of conference call firms and develop hypotheses on managers' incentives to commit to using conference calls.

Finally, the results in this study should be interpreted with caution. If conference calls are complements to other venues of disclosure, like public financial reports or press releases then the results may be driven by those disclosures rather than conference calls.

Furthermore, omitted factors may be correlated with information asymmetry, institutional ownership, and the decision to use conference calls, and these factors may be causing the observed relations.

Table 3-1. Variable measurement

ccall	Indicator variable that takes the value of "1" the years following initiation of conference calls (y=0,1) and "0" otherwise (y=-1,-2).
spread	Relative bid-ask spreads, measured as the median daily bid-ask spread as a percentage of the average bid and ask prices during the firms fiscal year
inpct	Quarterly average percentage of institutional holdings during the fiscal year as reported by Spectrum database/
numanal	Number of analysts with at least one earnings forecast in the I/B/E/S dataset at the beginning of the fiscal year
Control Variables	
perin	Insider ownership measured as the quarterly average percentage of shares owned by insiders as reported by Compact database.
mv	Market value of Equity
volume	Trading volume, measured as the total value of shares traded scaled by market value of equity
price	Is the average daily closing price during the year as reported by CRSP.
stdret	Standard deviation of returns, measured as the standard deviation of monthly returns ending three months after the fiscal year-end
stdturn	The standard deviation of share turnover, where turnover is the percentage of outstanding shares traded daily
nshareholders	The total number of common shareholders as reported by COMPUSTAT
cumret	36-months cumulative market adjuster returns at the beginning of the fiscal year
ibexm	Earnings before extraordinary items scaled by market value
sgr	Total sales divided by total sales at the beginning of the fiscal year.
dp	Dividend yield, measured as the ratio of dividends to market value of equity
bm	The ratio of book value of assets to the sum of market value of equity and book value of liabilities
turnover	Share turnover, measured as the percentage of outstanding shares traded daily
stdroa	Standard deviation of return on assets for the 12 quarters prior to the current fiscal year
lev	Leverage, measured as the ratio of total debt to total assets
beta	The Firm' Beta as reported by CRSP
sp500	An indicator variable that takes the value of '1' if the firm is listed in the S&P 500 and '0' otherwise

Table 3-2. Distribution of conference call firms by industry

FF	Industry Name	N	FF	Industry Name	N
1	Agriculture	1	25	Aircraft	6
2	Food Products	12	26	Shipbuilding, Railroad	3
3	Candy and Soda	2	27	Defense	2
4	Alcoholic Beverages	7	28	Precious Metals	1
5	Tobacco Products	2	29	Nonmetallic Mining	4
6	Recreational Products	7	30	Coal	1
7	Entertainment	10	31	Petroleum and Natural Gas	35
8	Printing and Publication	12	32	Utilities	23
9	Consumer Goods	27	33	Telecommunications	24
10	Apparel	20	34	Personal Services	8
11	Healthcare	17	35	Business Services	126
12	Medical Equipment	13	36	Computers	52
13	Pharmaceutical Products	21	37	Electronic Equipment	85
14	Chemicals	32	38	Measuring and Control Equip.	20
15	Rubber and Plastic Products	8	39	Business Supplies	20
16	Textiles	9	40	Shipping Containers	4
17	Construction Material	17	41	Transportation	29
18	Construction	13	42	Wholesale	37
19	Steel Works, ETC	22	43	Retail	92
20	Fabricated Products	5	44	Restaurants, Hotel, Motel	22
21	Machinery	48	45	Banking	21
22	Electrical Equipment	12	46	Insurance	58
23	Miscellaneous	2	47	Real Estate	3
24	Automobiles and Trucks	13	48	Trading	47
				TOTAL	1055

The table presents the distribution of conference call firms by industry. Industry definition is based on Fama & French 48 industry classification.

Table 3-3. Unadjusted descriptive statistics

Variable	N	Mean	Std Dev	Median	Q1	Q3
ccall	4602	0.66	0.47	1.00	0.00	1.00
spread	1923	0.02	0.02	0.02	0.01	0.03
inpct	4602	0.48	0.24	0.53	0.32	0.67
numanal	4602	7.92	7.12	6.00	2.00	12.00
cumret	4590	0.24	0.55	0.16	-0.09	0.44
stdret	4590	0.39	0.21	0.34	0.23	0.49
stdroa	3992	0.02	0.03	0.01	0.01	0.02
turnover	4581	6.42	6.17	4.11	2.46	7.93
beta	4496	0.97	0.59	0.88	0.56	1.32
lev	4602	0.52	0.22	0.53	0.36	0.68
bm	4602	0.47	0.40	0.58	0.24	0.58
ibexm	4602	0.03	0.16	0.05	0.02	0.07
dp	4602	0.01	0.05	0.00	0.00	0.02
sgr	4576	1.27	0.54	1.16	1.05	1.33
sp500	4602	0.28	0.45	0.00	0.00	1.00
mv	4602	2804.71	5456.54	845.73	291.21	2428.34
price	4590	29.68	17.54	26.43	16.45	39.07
nshareholders	4368	14.19	31.05	3.10	0.85	11.30
stdturn	4590	7.43	8.24	4.41	2.25	9.51
volume	4590	11.30	19.78	3.84	1.16	11.79
perin	4602	11.53	17.81	2.57	0.00	15.80
lnmv	4602	6.77	1.56	6.74	5.67	7.79

All variables are defined in Table 3-1.

Table 3-4. Industry adjusted descriptive statistics

Variable	N	Mean	Median	Std Dev	Q1	Q3
ccall	4602	1.00	1.00	0.00	1.00	1.00
spread	1923	-0.02	-0.02	0.02	-0.03	-0.01
inpct	4602	0.28	0.31	0.23	0.09	0.46
numanal	4602	6.58	5.00	7.03	0.00	11.00
cumret	4590	0.17	0.08	0.53	-0.13	0.35
stdret	4590	-0.04	-0.06	0.19	-0.16	0.05
stdroa	3992	0.00	0.00	0.03	-0.01	0.00
turnover	4581	2.46	0.55	5.68	-0.82	3.58
beta	4496	0.30	0.23	0.54	-0.05	0.62
lev	4602	0.02	0.02	0.19	-0.11	0.15
bm	4602	-0.07	0.34	41.25	0.17	0.57
ibexm	4602	-0.01	0.01	0.15	-0.01	0.03
dp	4602	0.01	0.00	0.01	0.00	0.01
sgr	4576	0.13	0.02	0.53	-0.07	0.18
sp500	4602	0.28	0.00	0.45	0.00	1.00
mv	4602	2584.58	656.27	5416.56	139.96	2241.63
price	4590	16.60	13.19	17.41	4.11	25.76
nshareholders	4368	12.29	1.60	30.82	-0.44	9.49
stdturn	4590	2.07	-0.28	7.74	-2.17	3.68
volume	4590	10.58	3.11	19.69	0.58	10.97
perin	4602	5.48	-0.18	17.68	-4.69	9.28
lnmv	4602	1.83	1.77	1.58	0.73	2.90

All variables are defined in Table 3-1.

Table 3-5. Industry adjusted bid ask spreads and intermediation around initiations of conference calls

	Year Relative to Disclosure increase				
	-2	-1	0	1	2
Industry adjusted Log of Bid-Ask Spreads					
Mean*	-0.65	-0.68	-0.93	-0.77	-0.91
Median*	-0.64	-0.70	-0.90	-0.74	-0.85
Std	0.6	0.62	0.76	0.64	0.74
t	-18.17	-20.82	-25.88	-25.59	-24.31
N	284.00	355.00	447.00	443.00	394.00
Industry-Adjusted Bid-Ask Spreads					
Mean*	-0.02	-0.02	-0.02	-0.02	-0.02
Median*	-0.02	-0.02	-0.02	-0.02	-0.02
Std	0.02	0.02	0.02	0.01	0.01
t	-15.88	-17.5	-25.5	-25.57	-22.41
N	284.00	355.00	447.00	443.00	394.00
Industry-Adjusted Institutional Ownership					
Mean*	0.2	0.25	0.32	0.29	0.3
Median*	0.12	0.28	0.35	0.31	0.33
Std	0.26	0.24	0.22	0.21	0.22
t	20.08	31.37	48.29	44.5	42.66
N	710.00	860.00	1049.00	1015.00	968.00
Industry-Adjusted Analyst Following					
Mean*	5.96	6.02	6.88	6.53	7.26
Median*	4.00	4.00	5.00	5.00	6.00
Std	6.98	7.01	7.10	6.73	7.25
t	22.76	25.18	31.38	30.91	31.13
N	710.00	860.00	1049.00	1015.00	968.00

A t-test and Wincoxon signed rank test are used to test whether there is a significant change in the mean and median for sample firms in the years of the disclosure increase (years 0 to 2) relative to the pre-event period (years -2 and -1).
*Change in mean (median) in the pre-event period (years -2 and -1) and the post event period (years 0 to 2) is significantly different from zero at the 1% level using 2-tatiled test.

Table 3-6. Unadjusted bid ask spreads and intermediation around initiations of
conference calls

	Year Relative to Disclosure increase				
	-2	-1	0	1	2
Log of Bid-Ask Spreads					
Mean*	-3.65	-3.77	-4.2	-4.13	-4.41
Median*	-3.64	-3.75	-4.17	-4.11	-4.38
Std	0.61	0.61	0.79	0.64	0.75
t	-101.21	-116.36	-112.71	-135.14	-116.12
N	284.00	355.00	447.00	443.00	394.00
Bid-Ask Spreads					
Mean*	0.03	0.03	0.02	0.02	0.02
Median*	0.03	0.02	0.02	0.02	0.01
Std	0.02	0.02	0.02	0.01	0.01
t	25.96	27.11	27.41	32.77	25.08
N	284.00	355.00	447.00	443.00	394.00
Institutional Ownership					
Mean*	0.28	0.47	0.55	0.53	0.54
Median*	0.22	0.50	0.58	0.55	0.57
Std	0.28	0.24	0.21	0.20	0.21
t	26.41	57.92	83.66	83.79	80.4
N	710.00	860.00	1049.00	1015.00	968.00
Analyst Following					
Mean*	6.82	7.13	8.32	8.03	8.86
Median*	5.00	5.00	7.00	7.00	8.00
Std	7.04	7.10	7.17	6.79	7.32
t	25.83	29.48	37.55	37.69	37.65
N	710.00	860.00	1049.00	1015.00	968.00

A t-test and wincoxon signed rank test are used to test whether there is a significant
change in the mean and median for sample firms in the years of the disclosure increase
(years 0 to 2) relative to the pre-event period (years -2 and -1).
*Change in mean (median) in the pre-event period (years -2 and -1) and the post event
period (years 0 to 2) is significantly different from zero at the 1% level using 2-tailed test.

Table 3-7. Regression results of the effect of conference calls on bid-ask spreads

Variable	Predicted sign	Parameter Estimate	Standard Error	t Value	Pr > |t|
Intercept	?	1.691	0.112	15.080	<.0001
ccall	-	-0.263	0.015	-17.300	<.0001
lnperin	+	0.005	0.005	0.990	0.324
lnmv	-	0.005	0.017	0.280	0.780
lnvolume	-	-0.392	0.015	-26.930	<.0001
lnprice	-	-0.026	0.017	-1.530	0.126
lnstdret	+	0.066	0.020	3.360	0.001
lnstdturn	+	0.144	0.016	9.050	<.0001
lnshareholders	-	-0.011	0.005	-2.210	0.027
Adj R-Sq		84.21%			
N		1,089			

All variables are defined in Table 3-1.

Table 3-8. Regression results of the effect of conference calls on institutional ownership

Variable	Predicted sign	Parameter Estimate	Standard Error	t Value	Pr > |t|
Intercept	?	0.107	0.024	4.480	<.0001
ccall	+	0.150	0.008	19.110	<.0001
cumret	+	0.015	0.007	2.270	0.023
ibexm	+	0.089	0.025	3.630	0.000
sgr	+	0.005	0.008	0.670	0.500
lnmv	+	0.021	0.003	6.240	<.0001
dp	-	-0.799	0.235	-3.400	0.001
bm	?	0.004	0.002	1.920	0.055
turnover	+	0.006	0.001	8.070	<.0001
lnstdret	-	-0.062	0.011	-5.780	<.0001
stdroa	-	-0.680	0.136	-4.990	<.0001
lev	+	0.016	0.021	0.750	0.453
beta	+	0.036	0.007	4.850	<.0001
sp500	+	0.004	0.010	0.360	0.716
Adj R-Sq		17.33%			
N		3963			

All variables are defined in Table 3-1.

Table 3-9. Regression results of the effect of conference calls on analyst following

Variable	Predicted sign	Parameter Estimate	Standard Error	t Value	Pr > |t|
Intercept	?	-5.760	0.633	-9.100	<.0001
ccall	+	-0.180	0.208	-0.870	0.387
cumret	+	-0.902	0.177	-5.080	<.0001
ibexm	+	-0.637	0.649	-0.980	0.327
sgr	-	-1.134	0.203	-5.590	<.0001
lnmv	+	2.532	0.089	28.330	<.0001
dp	?	-67.637	6.215	-10.880	<.0001
bm	?	0.098	0.058	1.690	0.092
turnover	+	0.213	0.020	10.520	<.0001
Lnstdret	?	0.914	0.281	3.250	0.001
Stdroa	-	-12.052	3.605	-3.340	0.001
Lev	-	-2.544	0.548	-4.640	<.0001
Beta	+	-0.236	0.196	-1.210	0.227
sp500	+	1.982	0.261	7.600	<.0001
Adj R-Sq		38.31%			
N		3963			

All variables are defined in Table 3-1.

Table 3-10. Second-stage least squares of conference on bid-ask spreads controlling for analyst following

Variable	Predicted sign	Parameter Estimate	Standard Error	t Value	Pr > |t|
Intercept	?	0.04421	0.001	33.350	<.0001
ccall	-	-0.00695	0.001	-8.920	<.0001
numanal	-	-0.00172	0.000	-8.830	<.0001
perin	+	0.00018	0.000	8.910	<.0001
mv	-	0.00000	0.000	2.470	0.014
volume	-	0.00000	0.000	4.070	<.0001
price	-	-0.00029	0.000	-7.920	<.0001
stdret	+	-0.00324	0.002	-1.730	0.084
stdturn	+	-0.00013	0.000	-2.830	0.005
nshareholders	-	-0.00002	0.000	-0.700	0.487
Adj R-Sq		40.75%			
N		1423			

All variables are defined in Table 3-1.

Table 3-11. Second-stage least squares of conference calls on institutional ownership

Variable	Predicted sign	Parameter Estimate	Standard Error	t Value	Pr > |t|
Intercept	?	0.346	0.026	13.270	<.0001
ccall	+	0.142	0.013	10.980	<.0001
cumret	+	0.026	0.009	3.080	0.002
ibexm	+	0.094	0.045	2.060	0.039
sgr	+	0.015	0.011	1.340	0.181
mv	+	0.000	0.000	-3.370	0.001
dp	-	1.092	0.674	1.620	0.106
bm	?	0.000	0.006	0.020	0.986
turnover	+	0.009	0.001	8.970	<.0001
stdret	-	-0.198	0.032	-6.240	<.0001
stdroa	-	-0.695	0.161	-4.320	<.0001
lev	+	-0.031	0.032	-0.980	0.326
beta	+	0.036	0.012	3.120	0.002
sp500	+	0.026	0.018	1.440	0.151
Adj R-Sq		20.06%			
N		1423			

All variables are defined in Table 3-1.

Table 3-12. Second-stage least squares of conference calls on analyst following
controlling for institutional ownership

Variable	Predicted sign	Parameter Estimate	Standard Error	t Value	Pr > |t|
Intercept	?	1.369	1.019	1.340	0.179
ccall	+	-0.510	0.450	-1.130	0.258
inpct	+	9.935	2.193	4.530	<.0001
cumret	+	-0.949	0.224	-4.230	<.0001
ibexm	+	0.854	1.149	0.740	0.458
sgr	-	-0.738	0.281	-2.620	0.009
mv	+	0.001	0.000	13.640	<.0001
dp	?	-10.935	17.227	-0.630	0.526
bm	?	-0.128	0.151	-0.850	0.397
volm	+	0.208	0.033	6.390	<.0001
stdret	?	-1.369	0.923	-1.480	0.138
stdroa	-	-5.400	4.428	-1.220	0.223
lev	-	0.777	0.809	0.960	0.337
beta	+	0.240	0.304	0.790	0.430
sp500	+	4.693	0.464	10.120	<.0001
Adj R-Sq		41.30%			
N		1423			

All variables are defined in Table 3-1.

CHAPTER 4
THE ASSOCIATION BETWEEN CORPORATE GOVERNANCE STRUCTURE AND
CONFERENCE CALLS

Introduction

The separation of ownership and control in modern organizations gives rise to incentive problems and conflicts of interest commonly referred to as the agency problem (Jensen and Meckling, 1986). Managers have significant discretion managing corporations and can choose to pursue incentives other than shareholder maximization. Internal and external control mechanisms are means to control agency conflicts and protect investors from insider expropriation.

Financial information plays a significant role in mitigating agency problems and enhancing the effectiveness of both internal and external control mechanisms (Bushman and Smith, 2001). Better information allows investors to monitor the managers and take actions to ensure that incentives are compatible. The board of directors and institutional investors rely on high-quality information to assess management performance and prevent management from engaging in opportunism. However, the quality of information produced, disseminated, and analyzed depends on the incentives of the agents to do so. Information has value and managers have private incentives to withhold and distort information. Maintaining or increasing information asymmetries allows managers to hide failure, incompetence and abuses, and to seek rents in the form of either insider trading or expropriation of wealth (Edlin and Stiglitz, 1995; Shleifer and Vishny, 1989).

In this chapter we argue that agency costs and the resulting governance structure play a significant role in managers' decision to disclose information. We hypothesize that effective governance mechanisms, as expressed by corporate boards, corporate charter and bylaws, and institutional ownership, help alleviate agency costs and foster an environment of greater transparency.

Prior work examined the effect of corporate governance on financial accounting information. Dechow, Sloan, and Sweeney (1996) and Beasley (1996) provided evidence that the presence of outside directors reduces the likelihood of financial fraud, and Klein (2002) showed that a negative relation between outside directors and earnings management. Finally, Ajinkya et al. (2005) and Karamanou and Vafeas (2005) showed that firms with better governance mechanisms are more likely to issue earnings forecasts, and that these forecasts are more specific, more accurate, and less optimistically biased.

We extend this literature by examining the effect of corporate governance mechanisms on the probability of holding conference calls. There are two major differences between our study and the above papers. First, earnings forecasts are ex-post decisions of voluntary disclosures. While some firms may commit to regularly issuing earnings forecasts the majority of the cases occur after the realization of some information. For example, managers may issue earnings forecasts in order to adjust market expectations downwards or, in the case they observe bad news, in order to avoid litigation costs. Conference calls, on the other hand, are ex-ante commitments to voluntary disclosure. In this case managers commit to quarterly meetings with analysts and institutions before the realization of any information. In turn, this study argues that

firms with stronger governance mechanisms are more likely to ex-ante commit to more transparency.

A second major difference is that unlike earnings forecasts, conference calls are interactive. A large part of the conference call time is devoted to a question and answer session where managers address the questions of institutional investors and analysts. The willingness of managers to answer questions, instead of just issuing a forecast or a press release, indicates a commitment to transparency that is the focus of the hypotheses of this study.

In our tests we considered a sample of firms that commit to using quarterly conference calls as part of their communication policies between 1995 to the first quarter of 1999. Corporate governance mechanisms are proxied by the composition of the board of directors, institutional investors' ownership, and the firm's corporate charter and bylaws. We found that firms with stronger governance mechanisms are more likely to use conference calls. The results suggest that firms with stronger governance and lower agency costs are more transparent.

The study contributes to the voluntary disclosure literature by furthering our understanding of the link between voluntary disclosures and corporate governance mechanisms. The study also contributes to the corporate governance literature by providing further evidence on the role of corporate governance structure in alleviating incentive problems between the managers and investors.

Hypotheses Development

The separation of ownership and control in publicly traded firms involves an inherent information asymmetry between managers and investors. Managers are hired because of their expertise in acquiring information about the firm and its prospects and in making

decisions that will benefit the owners. The same reasons that managers are hired create information asymmetries by allowing managers to control the information flow to the market. Prior work shows that heightened disclosure is beneficial to investors. By reducing information asymmetry, disclosure can increase stock liquidity and lower the cost of raising capital[1]. In the previous chapter we showed that initiations of (and commitment to use) conference calls are associated with increases in liquidity, as proxied by bid-ask spreads, and increases in institutional ownership. In addition to capital market benefits, disclosure plays a key role in reducing agency costs and improving the efficiency of internal and external control mechanism (Bushman and Smith, 2001).

Despite these benefits, self-interested managers have private incentives to withhold and distort information. Lack of information inhibits the ability of capital and labor markets to monitor the managers effectively. Indeed, entrenched managers have incentives to exacerbate information asymmetry in order to hide failures and abuses (Edlin and Stiglitz, 1995; Shleifer and Vishny, 1989). The recent wave of financial accounting scandals (e.g., Enron, Worldcom, Tyco), highlights the importance of functional and effective governance mechanisms and sound financial disclosures in the control process.

Thus, managers' reluctance to disclose information is a fundamental agency problem that is directly related to other agency problems. We argue that effective governance structure help alleviate managers' incentives to withhold information and encourage more transparency. We use board composition, corporate charter and bylaw provisions, and institutional ownership to proxy for governance structure. The above have been shown by

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[1] See Diamond and Verrecchia (1991), Welker (1995), Botosan (1997), Sengupta (1998), and Leuz and Verrecchia (2000).

prior research to be related with lower agency costs and to promote actions that are in the shareholders' best interests.

Directors' Composition and Conference Calls

A large body of empirical research suggests that board characteristics affect the board's effectiveness, and that the important characteristics include board size and independence. Outside directors that are independent of management influence are shown to be more likely to take actions that enhance shareholder value (Heramlin and Weisbach, 2003). Similarly, smaller board sizes have also been linked to better firm performance and board effectiveness. Smaller boards are likely to be more efficient due to better communication and coordination and fewer free riding problems than larger boards (Jensen, 1993; Yermack, 1996).

Board characteristics can also play a significant role on a firm's communications with investors. Regarding financial reporting, Dechow, Sloan, and Sweeney (1996) and Beasley (1996) provided evidence that the presence of outside directors reduces the likelihood of financial fraud and Klein (2002) found that the presence of outside directors negatively affects earnings management. Ajinkya et al. (2005) and Karamanou and Vafeas (2005) found that board characteristics are related to the probability of issuing earnings forecasts and the properties of these forecasts. If more transparency is beneficial to investors then stronger boards are more likely to encourage better communications and alleviate managers' private incentives to withhold information. Consistent with this, the Corporate Board Member Magazine (2004) suggests that a key role of directors is the evaluation of investor communications, including quarterly teleconferences and press releases.

Drawing on the above findings we expect smaller boards with higher percentage of outside directors to be more likely to require the disclosure of additional information. This is because more independent and effective boards help alleviate manager's incentives to withhold information. Alternatively, outside board members do not have the same firm-specific knowledge and information as inside board members, and are therefore more likely to depend on the disclosure of additional firm-specific information in order to perform their monitoring duties effectively. The following hypothesis summarizes our expectations:

- **Hypothesis 4:** Firms with stronger board characteristics, as proxied by a higher percentage of outside directors and a smaller board size, are more likely to hold conference calls.

Corporate Charter and Bylaws and Conference Calls

A firm's corporate charter and bylaws and its state of incorporation laws provide the set of rules and procedures under which it operates. These rules define the power-sharing relationship between managers and shareholders and act as a potential internal governance mechanism. A number of charter provisions and state laws, such as classified boards, antitakeover protection laws, and poison pills, empower managers and give them tools to resist shareholder activism. M anagers in firms with favorable charter and bylaws are more likely to influence the board of directors and take actions that are not in the shareholders' best interest.

Gompers et al. (2003) created an index based on 24 distinct corporate governance provisions and showed that firms with weak shareholder rights, which they call the dictatorship portfolio, underperforms firms with strong shareholder rights (the "democracy portfolio") during the 1990s. They also showed that this underperformance

may be the result of higher agency costs in the dictatorship portfolio, as indicated by large inefficient capital expenditures and acquisition activity by these firms.

A firm's charter and bylaws and the power they provide to managers are also likely to influence the managers' willingness to disclose information and the ability of shareholders to demand more transparency. For example, Holland (1998) reports that managers use shareholder meetings to cultivate financial institutions and analysts' trust and confidence in the company and the managerial team, and to gain support during takeovers. Managers are less likely to have the need to disclose information in order to gain shareholder support, if a firm's charter and state of incorporation laws include antitakeover provisions and rules that increase their power. Drawing on these observations, we expect firms with stronger shareholder rights to be more likely to hold conference calls. The following hypothesis summarizes our expectations:

- **Hypothesis 5:** Firms with stronger shareholder rights as captured by the corporate charter and bylaws and state of incorporation laws, are more likely to hold conference calls

Institutional Ownership and Conference Calls

Shareholder activism and monitoring by institutions has become an important aspect of US capital markets over the last decade. Through their voting power institutional investors can put pressure on the managers, express their dissatisfaction with a firm's strategy and future direction and, if necessary, organize legal actions readily than smaller investors. The governance role of institutional investors has been documented extensively on several issues. Hartzell and Starks (2003) show that in firms with higher institutional ownership, executive compensation is more incentive based. Jarell and Paulsen (1987) find that firms with large institutional holdings are less likely to propose anti-takeover amendments. Shivdasani (1993) show that large outside shareholders

increase the likelihood that a firm is taken over. Finally, a large number of empirical studies document institutional investor activism through the proxy process where institutions target firms on corporate governance issues and charter amendments (Gillan and Starks, 1998; Gillan and Starks, 2000).

Institutional investors rely on public disclosures in order to assess management performance and to prevent management from engaging in opportunism. Institutions can therefore put pressure on the managers to provide additional information and be more transparent. Consistent with this Ajinkya et al. (2005) found that firms with higher institutional ownership are more likely to issue earnings forecasts. In turn, we expect firms with higher institutional ownership to be more likely to hold conference calls. Our expectation is summarized in the following hypothesis:

- **Hypothesis 6:** Firms with greater percentage of institutional ownership are more likely to hold conference calls.

Competing hypotheses

The main assumption of this chapter is that rent-seeking managers prefer to withhold information from investors. However, there are exceptions to the benefits of financial disclosures and transparency. There are cases where less disclosure is in the owners' best interest. Managers seeking to maximize investor value have incentives to withhold information that can compromise the firm's competitive advantage (Verrecchia, 1983). The proprietary cost assumption predicts a negative relation between governance structure and transparency and it is an alternative testable hypothesis.

A number of analytical papers in accounting derive equilibrium conditions where earnings management and suppression of information can actually enhance the efficiency of compensation contracts. Information suppression or distortion can be beneficial in

cases where the principle is unable to commit not to fire employees (Arya et al.,1998), not to renegotiate contracts (Demski and Frimor, 1999), or not to ratchet up performance (Indjejikian and Nanda, 1999). The contracting argument, however, ignores the efficiency losses that can arise by suppressing information. High quality information is useful for valuation purposes and the efficient allocation of capital in the economy, and it is a necessary component for the function of other corporate governance mechanisms.

These exceptions provide competing arguments to the hypotheses developed in this study. We do not of course argue that withholding or distorting information necessarily indicate opportunism. Instead we hypothesize that certain governance mechanisms are more likely to encourage transparency. Welfare implications are difficult to address and are beyond the scope of this study.

Research Design

We tested the hypotheses using a number of econometric methods in order to provide robustness of the results and avoid problems inherent in panel data analysis. We first estimated the model using logistic regression on the pooled sample of observations during the sample period. An assumption of this analysis is that observations are independent. A problem with estimating the model on the pooled sample of observations is that repeated observations for the same firm may inflate the significance of the results due to within-stock serial correlation and heteroscedasticity.

To lessen these problems, we estimated the regressions using feasible generalized least squares (FGLS). The FGLS fits a generalized linear model to the data by maximum likelihood and gives consistent estimates of the regression parameters and their variance under mild assumptions about the structure of the covariance matrix (Greene, 1997; Liang and Zeger, 1986; Lipsitz et al., 1991).

Finally, we estimated the model using a Fama-McBeth approach. The Fama-McBeth approach involves two steps. First, the regressions are estimated separately for each of the five years in the sample and then the coefficients from each of these regressions are averaged across the years (Fama and McBeth, 1973).

Regression Specification

The model for conference calls is as follow:

$$
\begin{aligned}
prob(ccall) = {} & \delta_0 + \delta_1 gscore_{it} + \delta_2 outdir_{it} + \delta_3 ndir_{it} + \delta_4 inpct_{it} + \delta_5 numanal_{it} \\
& + \delta_6 nseq_{it} + \delta_7 inta_{it} + \delta_8 stdroa_{it} + \delta_9 sgr_{it} + \delta_{10} bm_{it} + \delta_{11} rd_{it} \\
& + \delta_{12} stdret_{it} + \delta_{13} equity_{it} + \delta_{14} debt_{it} + \delta_{15} lnmv_{it} + \delta_{16} lit_{it} \\
& + \delta_{17} IndustryControls_{it} + \delta_{18} yearControls_{it} + \varepsilon_{it}
\end{aligned}
\tag{4-1}
$$

where, the dependent variable is an indicator variable that takes the value of "1" if the firm uses conference calls for at least six quarters during the sample period, and "0" otherwise. The "gscore" is the Gompers et al. (2003) index multiplied by -1. It is based on 24 distinct corporate governance provisions and proxies for the strength of shareholder rights. The percentage of outside directors ("outdir") and the total number of directors ("ndir") are used to proxy for the effectiveness of the board of directors. Finally, "inpct" is the percentage on institutional ownership and it is used to proxy for the monitoring role of institutional investors. Based on prior research on voluntary disclosures and conference calls we include several independent variables to control for other possible determinants of conference call activity.

Prior studies on voluntary disclosures show that analyst following is positively related to the quality of voluntary disclosures and the decision to hold conference calls (Lang and Lundholm, 1993; Bushee et al., 2003; Tasker, 1998; Frankel et al., 1999). To control for the effect of analysts on voluntary disclosures we use the number of analysts

following the firm at the beginning of the year, measured as the number of analysts with at least one earnings forecast in the I/B/E/S dataset ("numanal").

Tasker (1998) argues that firms with less informative financial statements and more complex business models are more likely to host conference calls. Firms with a complex business model will have more complicated financial disclosures because the information required to explain current performance and to provide indications of future performance is likely to be technical in nature and easy to misinterpret (Bushman et al., 2003). As a proxy for firms with complex business models we use the number of business segments ("nseg"), intangibles scaled by total assets ("inta") and standard deviation of returns on equity ("stdroa").[2] We expect these variables to be positively related to the probability of hosting conference calls.

Lang and Lundholm (1993) provide evidence that firm performance is positively related to disclosure quality. Furthermore, Bamber and Cheon (1998), show that firms with poor earnings are more likely to issue earnings forecasts in special press releases, while firms with higher growth are more likely to issue forecasts in analysts meetings. To control for the effect of firm performance and growth we use the three year sales growth ("sgr") and the 36-months cumulative market adjusted returns at the beginning of the fiscal year ("cumret").[3]

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[2] We also follow Tasker (1998) and measure financial statement informativeness using the industry R^2 from a regression of monthly market adjusted stock returns on earnings. The results do not change when we include this variable.

[3] To measure firm performance we also include market adjusted earnings and earnings changes. These variables are not significant and do not affect the results of the study.

We use the ratio book-to-market ("bm") and research and development to total assets ("rd") to proxy for growth opportunities and proprietary costs. The book-to-market ratio is used to proxy for several factors. It is commonly used as a proxy for the investment opportunity set or growth opportunities of a company (Smith and Watts, 1992). It is also used to proxy for information asymmetries between the managers and shareholders, and proprietary costs. We expect firms with higher proprietary costs to be more likely to use restricted access conference calls to communicate information.

Firms operating in more uncertain environments are more likely to issue voluntary disclosures. We use the standard deviation of 36-month market adjusted cumulative returns to proxy for uncertainty ("stdret"). We expect that this variable to be positively related to the probability of hosting conference calls.

Managers intending to issue new equity care about short-term stock price because it affects the proceeds from the equity sale. Managers have incentives to reduce information asymmetry between the firm and outside investors in order to minimize adverse selection problems. Empirical evidence supports this argument. New equity issues typically occur in the weeks following a public earnings announcement when information asymmetry is supposed to be at its lowest (Korajczyk et al., 1990). Several empirical studies show that firms with higher quality or increased quality of voluntary disclosures are more likely to issue debt or equity (Lang and Lundholm, 1997; Healy et al., 1999a; Marquardt and Wiedman, 1998; Lang and Ludholm, 2000). We use two indicator variables to proxy for a firm's financing activity. Equity issue ("equity") and debt issue ("debt") are set equal to "1" if a firm's proceeds from equity or debt issuance are higher than 5 % of the market

value of equity, respectively, and "0" otherwise. We expect these variables to be positively related to the probability of hosting conference call.

Prior research has consistently shown that firm size is positively associated with disclosure quality (Lang and Lundholm, 1993). We use the natural logarithm of market value of equity to proxy for firm size ("lnmv").[4]

Litigation costs can have both a positive and a negative effect on the decision to provide voluntary disclosures. First, the threat of litigation may encourage managers to increase voluntary disclosures of bad news in order to avoid litigation costs (Skinner, 1994, 1997). On the other hand, litigation costs may reduce the managers' willingness to provide voluntary disclosures, especially forward-looking disclosures. As a proxy for litigation risk, we use an indicator for membership in a highly litigious industry ("lit").[5] Finally, we include year and industry indicator variables to control for time and industry effects.

Sample Selection and Description

We obtained conference call data from Thomson Financial First Call, an information provider to institutional investors. First Call maintains a dataset of daily conference call schedules from 1995 to 2004, which we use to identify firms hosting conference calls. The sample for this study covers the period from 1995 through the first quarter of 1999. In order to capture a long-term commitment to voluntary disclosures and

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[4] Results do not change if we use the logarithm of Sales or total Assets.

[5] SIC codes classified as highly litigious include: Biotechnology (2833-2836) and (8731-8734); Computers (3570-3577) and (7370-7374); Electronics (3600-3674); Retailing (5200-5961).

exclude special, one-time, conference calls, we assign firms into the conference calls sub sample if they hold at least six quarterly conference calls over the sample period.

Information on board characteristics is obtained from Compact Disclosure. The database provides information on board of directors collected from proxy statements. Institutional holdings data are obtained from Spectrum. For the effect of a firm's corporate charter, bylaws, and state of incorporation laws, we used the gscore of Gompers et al. (2003) obtained from the Investor Responsibility Research Center (IRRC). The IRRC publishes detailed listings of corporate-governance provisions for individual firms. These data are derived from a variety of public sources including corporate bylaws and charters, proxy statements, annual reports, as well as 10-K and 10-Q documents filed with the SEC. Gompers et al. (2003) consider 24 unique provisions and construct the index by adding one point for every provision that restricts shareholder rights. We multiply the score by "-1" to make it positively related with shareholder rights. Therefore, higher scores represent more shareholder rights.

Stock return data are collected from the Center for Research in Security prices (CRSP) database, and financial information from Compustat. All variables are defined in Table 4-1. Financial firms (SIC 6000-6999) and firms with missing observations on any of the control variables are excluded from the sample. We avoid problems with outliers by winsoring the control variables at the 1% and 99% level.

Tables 4-2 to 4-5 provide descriptive statistics for the variables used in the empirical tests. After removing observations with missing values, the final sample consists of 2,753 observations representing 469 unique conference call firms and 640 unique control firms. Table 4-2 shows the distribution of firms by industry. The table

indicates that there is a large variation of conference calls both across and within industries. The largest concentration is in the business services industry, where 84 firms used conference calls to communicate information.

Table 4-3 provides descriptive statistics for the full sample, and Tables 4-4 and 4-5 provide descriptive statistics by conference call classification. Tables 4-4 and 4-5 show that conference call firms have higher percentage of institutional ownership and larger analyst coverage than non-conference call firms. The average institutional ownership for conference call firms is 61% compared to 50% for the control sample, and on average 12 analysts follow these firms compared to 7 analysts for the control sample. The average intangibles to total assets is 10% for conference call firms compared to 9% for the control firms, and the average research and development to total assets is 3% for conference call firms compared to 2% for the control sample. Conference call firms are also larger, with average logarithm of market value of 7.6 compared to 6.8 for the control sample, and 32% of them are in a high litigious industry compared to 15% for the control sample. Finally, conference call firms do not differ much from the control group on the gscore and board characteristics. The average gscore is -9 for both groups, the average percentage of outside directors is 67% for both groups, and the average number of directors is 8.9 for both groups. The initial evidence, with the exception of institutional ownership, is contrary to the hypotheses of this study.

Table 4-6 presents Pearson (Spearman) pairwise correlations above (below) the diagonal among the governance variables and the conference call indicator variable. The gscore is negatively related with the percentage of outside directors and the percentage of institutional ownership suggesting that these measures serve as substitutes in disciplining

the manager. Board of directors efficacy variables are positively related with institutional ownership suggesting the these measures serve as complements in monitoring the manager. Finally the conference call dummy is positively related with institutional ownership and weakly positively related with the percentage of outside directors.

Empirical Results

Multivariate Analysis

Table 4-7 presents the results from a logistic regression of the firm's conference call decision on corporate governance mechanisms and control variables. The models pseudo r-square is 26 % and is comparable to previous studies. The coefficient on gscore is positive and statistically significant at the 5% level (two-tailed). The evidence suggests that firms with stronger shareholder rights are more likely to hold conference calls, consistent with the second hypothesis of this study. Similarly, the coefficient on the percentage of outside directors is positive and statistically significant at the 5% level, while the coefficient on the number of directors is negative and statistically significant at the 1% level. The evidence is consistent with the first hypothesis of the study and suggests that firms with stronger board of directors are more likely to use conference calls. The coefficient on institutional ownership is positive and statistically significant at the 1% level, consistent with the third hypothesis of this study. Firms with higher institutional ownership are more likely to use conference calls.

Larger firms that are followed by a higher number of analysts, and have higher research and development costs, are also more likely to use conference calls. These results are consistent with prior research. Firms with lower cumulative returns and higher book to market ratio are less likely to use conference calls. The significant negative coefficient on cumulative returns suggests that firms are more likely to use conference

calls to explain poor performance. Finally, we find no evidence that future equity or debt financing are significant factors in explaining a firms decision to use conference calls.

A problem with estimating the above equations on the pooled sample of observations is that repeated observations for the same firm may inflate the significance of the variables due to within-stock serial correlation. To eliminate this problem we estimate the regressions using feasible generalized least squares (FGLS), controlling for within-stock serial correlation, and a Fama-Mcbeth approach.

Table 4-8 presents the results from a feasible generalized least squares of the firm's conference call decision on corporate governance mechanisms and control variables. The results are consistent with Table 4-4 but not as significant. The gscore is only significant at the 10% level one-tailed, while outside directors and the board size are significant at the 5% level one-tailed test. Institutional ownership is still strongly statistically significant at the 1% level two-tailed test. The control variables are as discussed before.

Table 4-9 presents the results from the Fama-McBeth estimation approach. The table shows that the gscore is positive and statistically significant at the 5% level two-sided test. The number of directors is negative and statistically significant at the 5% level, while the percentage of outside directors is positive but only significant at the 10% level one-sided test. The percentage of institutional ownership is still strongly statistically significant.

Overall, the evidence from the logistic regression and, to a lesser extent, from the generalized least squares estimation and Fama-McBeth estimation is consistent with all three hypothesis of this study. Firms with higher percentage of outside directors and smaller board size are more likely to use conference calls. Firms with stronger

shareholder rights and higher percentage of institutional ownership are also more likely to use conference calls. The results suggest that corporate governance mechanism complement and improve voluntary disclosure practices.

Robustness Tests

A potential problem with the above analysis is the assumption that corporate governance mechanisms are exogenous and the only choice variable is whether firms should use conference calls. However, the board of directors' composition and a firm's charter and bylaws are all endogenous variables. It is therefore likely that firms endogenously choose corporate governance mechanism and communication policies in order to maximize firm value. In this case the results are likely to suffer from endogeneity bias. A way to deal with this problem is to run simultaneous equations using instruments for all endogenous variables. Simultaneous equations, however, can create more problems if the instruments for all variables of interest are not properly identified. We tried to mitigate for the endogeneity bias by measuring control variables at the beginning of the year. The results are similar and are not reported.

To provide additional evidence of the robustness of the results we examine the effect of corporate governance mechanisms on the frequency of conference calls. We restrict the sample to firms with at least one conference call during the sample period and take the averages of all the control variables during the period. The research design provides more powerful tests of the hypotheses since all firms in the sample are conference call firms. We use logistic regression to estimate equation 4-1 using the total number of quarterly conference calls during the sample period as the dependent variable.

Table 4-10 presents the results of the effect of governance variables on the frequency of conference calls. The results indicate that the coefficients on the percentage

of outside directors, number of directors, and institutional ownership are still significant at the 5% level one-sided test, with the predicted sign. However, the coefficient on gscore is no longer statistically significant. Thus, it appears that firms with effective board of directors and high institutional ownership are likely to have more frequent conference call activity. The evidence is consistent with hypotheses 1 and 3 of this study, but does not support hypothesis 2. Fewer of the control variables are significant in explaining the frequency of conference calls compared with the previous section. This is expected since all firms in the sample are conference call firms and are therefore expected to be similar on several dimensions. The number of analysts following the firm is still positive and significant at the 1% level. Also, firms with more frequent conference call activity, appear to be larger, more likely to issue debt in the following years and more likely to belong to a high litigious industry.

Conclusions

In this chapter, we examine the relation between a set of corporate governance mechanisms and transparency, as surrogated by an ex-ante commitment to the use of quarterly conference calls. Using a sample spanning from 1995 to 1999, we initially find that firms with stronger board of directors, stronger shareholder rights, and higher institutional ownership are more likely to commit to using quarterly conference calls as part of their communication strategy. Additional analysis shows that stronger board of directors and higher institutional ownership are also favorably associated with the frequency of conference call activity. The evidence suggests that governance structure play an important role in a firm's communication policy, and that effective governance in public corporations is associated with less information asymmetry between managers and shareholders.

The study contributes to the voluntary disclosure literature and the corporate governance literature. Relaxing the assumption that managers and shareholders incentives for voluntary disclosures are aligned, we show that stronger corporate governance mechanisms play an important role in a manager's decision to disclose information. The evidence complements and extends previous studies on the relation between corporate governance and management earnings forecasts (Ajinkya et at., 2005; Karamanou and Vafeas, 2005). The study contributes to the corporate governance literature by showing that active boards and institutional investors are also likely to alleviate managers' incentives to withhold information.

In the next chapter we examine the relation between conference calls and executive compensation. Executive compensation is an important but costly internal corporate governance mechanism that is likely to affect a manager's willingness to disclose information. Furthermore, direct monitoring and transparency are also likely to affect the structure of executive compensation.

Table 4-1. Variable measurement

ccall	1 if a firm hosts conference calls during the year, and 0 otherwise
gscore	The G-score of Compers et al.(2003) multiplied by -1
outdir	Percentage of the board of directors that are not officers of the firm
ndir	Number of board of directors
inpct	Quarterly average percentage of institutional holdings as reported in Spectrum
numanal	Number of analysts with at least one earnings forecast in the I/B/E/S dataset at the beginning of the fiscal year
nseq	Number of a firm's business segments
inta	Intangibles scaled by total assets
rd	Research and Development scaled by total assets
cumret	36-months cumulative market adjuster returns ending three months after the fiscal year end
stdret	Standard deviation of returns, measured as the standard deviation of monthly returns ending three months after the fiscal year-end
Stdroa	Standard deviation of return on assets for the 12 quarters prior to the current fiscal year
sgr	Three years sales growth.
equity	1 if a firm's proceeds from equity issuance are higher than 5% of the market value of equity in at least one of the following three years, and 0 otherwise.
debt	1 if a firm's proceeds from Debt issuance are higher than 5% of the market value of equity in at least one of the following three years, and 0 otherwise.
bm	The ratio of book value of assets to the sum of market value of equity and book value of liabilities
lnmv	Logarithm of market value of equity.
lit	1 for all firms in the biotechnology (2833-2836) and (8731-8734), computers (3570-3577) and (7370-7374), electronics (3600-3674), and retailing (5200-5961) industries, and 0 otherwise.

Table 4-2. Distribution of sample firms by industry

FF	Industry Name	N	Ccall	Percent	FF	Industry Name	N	Ccall	Percent
					22	Electrical Equipment	39	11	28.21
1	Agriculture	15	1	6.67					
2	Food Products	74	33	44.59	23	Miscellaneous	7	2	28.57
3	Candy and Soda	7	1	14.29	24	Automobiles and Trucks	96	27	28.13
4	Alcoholic Beverages	11	5	45.45	25	Aircraft	18	14	77.78
5	Tobacco Products	5	2	40.00	26	Shipbuilding, Railroad	16	6	37.50
6	Recreational Products	23	9	39.13	27	Defense	12	11	91.67
7	Entertainment	39	8	20.51	28	Precious Metals	16	3	18.75
8	Printing and Publication	75	39	52.00	29	Nonmetallic Mining	17	4	23.53
9	Consumer Goods	96	57	59.38	31	Petrol and Gas	101	48	47.52
10	Apparel	30	26	86.67	32	Utilities	259	26	10.04
11	Healthcare	19	10	52.63	33	Telecommunications	74	18	24.32
12	Medical Equipment	61	12	19.67	34	Personal Services	15	5	33.33
13	Pharmaceutical Products	91	40	43.96	35	Business Services	161	84	52.17
14	Chemicals	114	64	56.14	36	Computers	89	56	62.92
15	Rubber Products	24	6	25.00	37	Electronic Equip.	149	88	59.06
16	Textiles	32	9	28.13	38	Measuring Equip.	42	16	38.10
17	Construction Material	112	35	31.25	39	Business Supplies	88	33	37.50
18	Construction	40	14	35.00	40	Shipping Containers	23	10	43.48
19	Steel Works, ETC	78	28	35.90	41	Transportation	85	29	34.12
20	Fabricated Products	14	3	21.43	42	Wholesale	146	63	43.15
21	Machinery	132	61	46.21	43	Retail	208	142	68.27
						Total	2753	1159	42.10

Table 4-3. Descriptive statistics for sample firms

Variable	N	Mean	Std Dev	Q1	Median	Q3
ccall	2753	0.421	0.494	0.000	0.000	1.000
gscore	2753	-9.082	2.880	-11.000	-9.000	-7.000
outdir	2753	0.674	0.279	0.625	0.778	0.857
ndir	2753	8.874	3.834	7.000	9.000	11.000
inpct	2753	55.192	18.583	43.260	56.855	69.463
numanal	2753	9.788	6.567	4.000	9.000	14.000
nseq	2753	2.056	1.314	1.000	1.000	3.000
inta	2753	0.097	0.128	0.000	0.045	0.152
stdroa	2753	0.015	0.018	0.005	0.010	0.018
sgr	2753	0.926	2.071	0.163	0.478	1.016
bm	2753	0.490	0.429	0.359	0.276	0.626
rd	2753	0.027	0.058	0.000	0.000	0.029
stdret	2753	0.358	0.199	0.225	0.307	0.437
equity	2753	0.108	0.310	0.000	0.000	0.000
debt	2753	0.656	0.475	0.000	1.000	1.000
lnmv	2753	7.190	1.449	6.117	7.082	8.183
lit	2753	0.227	0.419	0.000	0.000	0.000

All variables are defined in Table 4-1.

Table 4-4. Descriptive statistics for conference call sample.

Variable	N	Mean	Std Dev	Q1	Median	Q3
ccall	1159	1.000	0.000	1.000	1.000	1.000
gscore	1159	-9.081	2.866	-11.000	-9.000	-7.000
outdir	1159	0.677	0.286	0.636	0.778	0.857
ndir	1159	8.906	3.999	7.000	9.000	12.000
inpct	1159	61.108	16.109	51.134	62.325	72.747
numanal	1159	12.427	6.225	7.000	12.000	17.000
nseq	1159	2.072	1.380	1.000	1.000	3.000
inta	1159	0.106	0.128	0.000	0.058	0.163
stdroa	1159	0.016	0.018	0.006	0.010	0.019
sgr	1159	1.070	2.092	0.213	0.575	1.230
bm	1159	0.441	0.376	0.365	0.241	0.552
rd	1159	0.034	0.056	0.000	0.008	0.040
stdret	1159	0.381	0.197	0.242	0.328	0.476
equity	1159	0.101	0.301	0.000	0.000	0.000
debt	1159	0.638	0.481	0.000	1.000	1.000
lnmv	1159	7.666	1.394	6.668	7.659	8.637
lit	1159	0.321	0.467	0.000	0.000	1.000

All variables are defined in Table 4-1.

Table 4-5. Descriptive statistics for control sample

Variable	N	Mean	Std Dev	Q1	Median	Q3
ccall	1594	0.000	0.000	0.000	0.000	0.000
gscore	1594	-9.082	2.891	-11.000	-9.000	-7.000
outdir	1594	0.672	0.273	0.600	0.769	0.846
ndir	1594	8.851	3.711	7.000	9.000	11.000
inpct	1594	50.890	19.077	36.985	51.701	65.583
numanal	1594	7.869	6.131	3.000	6.000	12.000
nseq	1594	2.043	1.265	1.000	2.000	3.000
inta	1594	0.091	0.128	0.000	0.035	0.143
stdroa	1594	0.015	0.017	0.005	0.009	0.017
sgr	1594	0.820	2.050	0.129	0.408	0.892
bm	1594	0.526	0.481	0.350	0.308	0.671
rd	1594	0.023	0.058	0.000	0.000	0.022
stdret	1594	0.342	0.200	0.208	0.292	0.417
equity	1594	0.112	0.316	0.000	0.000	0.000
debt	1594	0.668	0.471	0.000	1.000	1.000
lnmv	1594	6.843	1.389	5.864	6.661	7.790
lit	1594	0.158	0.365	0.000	0.000	0.000

All variables are defined in Table 4-1.

Table 4-6. Pearson (Spearman) correlation coefficients

	ccall	gscore	outdir	ndir	inpct
ccall	1.0000	0.0002	0.0093	0.0070	0.2716
		0.9923	0.6258	0.7121	<.0001
gscore	-0.0018	1.0000	-0.1640	-0.1777	-0.1682
	0.9257		<.0001	<.0001	<.0001
outdir	0.0379	-0.2304	1.0000	0.7024	0.0188
	0.0471	<.0001		<.0001	0.3232
ndir	0.0107	-0.2243	0.5270	1.0000	-0.0122
	0.5762	<.0001	<.0001		0.5210
inpct	0.2679	-0.1681	0.0393	-0.0120	1.0000
	<.0001	<.0001	0.0392	0.5277	

Pearson (Spearman) coefficients above (below) the diagonal. All variables are defined in Table 4-1.

Table 4-7. Logistic regression examining the impact of governance structure on the likelihood of conference call occurrence

Parameter	Predicted Sign	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > ChiSq
intercept	?	-3.734	0.539	48.005	<.0001
gscore	+	0.044	0.018	6.192	0.013
outdir	+	0.538	0.243	4.892	0.027
ndir	-	-0.060	0.019	9.911	0.002
inpct	+	0.016	0.003	28.031	<.0001
numanal	+	0.054	0.012	21.344	<.0001
nseq	+	0.014	0.040	0.117	0.732
inta	+	-0.161	0.420	0.147	0.702
stdroa	+	4.737	3.063	2.392	0.122
sgr	-	0.025	0.024	1.067	0.302
cumret	-	-0.543	0.123	19.451	<.0001
bm	-	0.123	0.048	6.650	0.010
rd	+	3.006	1.073	7.856	0.005
stdret	+	-0.075	0.322	0.054	0.816
equity	+	0.247	0.158	2.449	0.118
debt	+	0.153	0.107	2.053	0.152
lnmv	+	0.450	0.064	50.051	<.0001
lit	+	0.188	0.227	0.683	0.408
R-Square		26.10%			
N		2753			

All variables are defined in Table 4-1. Industry and year controls are included but not reported.

Table 4-8. Feasible generalized least squares examining the impact of governance
structure on the likelihood of conference call occurrence

Parameter	Predicted Sign	Parameter Estimate	Standard Error	Z	Pr > |Z|
intercept	?	-3.734	0.774	-4.820	<.0001
gscore	+	0.044	0.028	1.570	0.117
outdir	+	0.538	0.295	1.820	0.069
ndir	-	-0.060	0.026	-2.320	0.020
inpct	+	0.016	0.005	3.390	0.001
numanal	+	0.054	0.018	3.040	0.002
nseq	+	0.014	0.061	0.230	0.819
inta	+	-0.161	0.641	-0.250	0.802
stdroa	+	4.737	4.398	1.080	0.281
sgr	-	0.025	0.035	0.710	0.476
cumret	-	-0.543	0.123	-4.400	<.0001
bm	-	0.123	0.065	1.890	0.058
rd	+	3.006	1.700	1.770	0.077
stdret	+	-0.075	0.368	-0.200	0.839
equity	+	0.247	0.203	1.220	0.222
debt	+	0.153	0.141	1.090	0.276
lnmv	+	0.450	0.094	4.780	<.0001
lit	+	0.188	0.349	0.540	0.591
N		2753			

All variables are defined in Table 4-1. Industry and year controls are included but not
reported.

Table 4-9. Fama-McBeth regression examining the impact of governance structure on the likelihood of conference call occurrence

Variable	Predicted	Mean	Std Dev	t Value	Pr > |t|
intercept	?	-5.298	1.917	-6.180	0.004
gscore	+	0.049	0.038	2.890	0.045
outdir	+	0.420	0.580	1.620	0.181
ndir	-	-0.032	0.019	-3.750	0.020
inpct	+	0.027	0.006	10.540	0.001
numanal	+	0.067	0.060	2.520	0.065
nseq	+	-0.008	0.050	-0.370	0.728
inta	+	-0.390	2.634	-0.330	0.757
stdroa	+	6.477	4.586	3.160	0.034
sgr	-	-0.044	0.052	-1.880	0.134
cumret	-	-0.413	0.460	-2.000	0.116
bm	-	0.242	0.498	1.090	0.339
rd	+	1.960	2.339	1.870	0.134
stdret	+	0.147	0.256	1.280	0.270
equity	+	0.348	0.865	0.900	0.419
debt	+	0.260	0.498	1.170	0.308
lnmv	+	0.364	0.192	4.250	0.013
lit	+	0.508	0.220	5.170	0.007
N		2753			

All variables are defined in Table 4-1. Industry and year controls are included but not reported.

Table 4-10. Ordered probit regression examining the impact of governance structure on
the frequency of conference calls

Parameter	Predicted Sign	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > ChiSq
intercept	?				
gscore	+	-0.0013	0.0248	0.0029	0.9570
outdir	+	0.7230	0.4322	2.7987	0.0943
ndir	-	-0.0712	0.0307	5.3689	0.0205
inpct	+	0.0069	0.0042	2.7226	0.0989
numanal	+	0.1220	0.0173	49.9039	<.0001
nseq	+	0.0127	0.0647	0.0385	0.8445
inta	+	0.5563	0.6054	0.8443	0.3582
stdroa	+	-0.3643	4.1164	0.0078	0.9295
sgr	-	0.0017	0.0237	0.0055	0.9409
cumret	-	-0.2263	0.2020	1.2555	0.2625
bm	-	-0.0083	0.0388	0.0459	0.8304
rd	+	1.2481	1.5447	0.6528	0.4191
stdret	+	-0.0471	0.6462	0.0053	0.9419
equity	+	0.1578	0.2536	0.3875	0.5336
debt	+	0.5419	0.1897	8.1586	0.0043
lnmv	+	0.1544	0.0853	3.2754	0.0703
lit	+	0.5428	0.2402	5.1078	0.0238
R-Square		26.16%			
N		819			

All variables are defined in Table 4-1. Industry and year controls are included but not
reported.

CHAPTER 5
THE RELATION BETWEEN CONFERENCE CALLS AND EQUITY INCENTIVES

Introduction

In chapter 4, we examined the relation between a set of corporate governance mechanisms and voluntary disclosures. We hypothesized that stronger corporate governance mechanisms alleviate managers' incentives to withhold private information and thereby play an important role in a firm's decision to use conference calls. The findings showed that firms with effective board of directors, higher institutional ownership, and more shareholder-empowering charter and bylaw provisions, are more likely to ex-ante commit to the use of quarterly conference calls as part of their communication strategies. In this chapter we continue this focus by examining the relation between conference calls and executive's equity compensation.

Over the last decade equity incentives via stock-based compensation have become a very important feature of the contracting environment between shareholders and executives. Hall and Liebman (1998) report that, in a sample of large US firms, the percentage of CEOs receiving stock option awards increased from 30% in 1980 to 70% by 1994. The same study reports that in 1980 57% of CEOs held some amount of options and by 1994 this figure reached 90%. During the 1990s institutional investors have called for tying CEO pay more directly to changes in shareholder wealth. Murphy (1999), reports that underlying the push towards increasing the sensitivity of CEO pay to stock-price performance is the belief that such policies will improve management incentives and company performance.

The fundamental reason for the use of stock-based compensation is to align the interests of shareholders and managers by tying executive wealth to stock performance (Demsetz and Lehn, 1985; Smith and Watts, 1982). Because executive effort is unobservable, compensation risk is imposed on executives in order to motivate them to take actions that are in the best interest of the shareholders. However, managers' risk-aversion makes equity compensation a very costly governance mechanism. Because equity incentives impose risk on the manager, the manager must be paid a premium over a level of fixed cash pay to compensate for this risk. So, there is a trade-off between imposing risk on a risk-averse agent and providing the appropriate incentives.

The level of equity incentives is set by the compensation committee and it is shown to vary with a firm's information environment, monitoring difficulties, and agency costs. In this study we argue that compensation and disclosure policies are endogenously determined by shareholders in order to maximize firm value. More specifically, using a system of simultaneous equations we examine whether compensation and disclosure policies are complementary or substitute governance mechanisms.

The first hypothesis takes the compensation contract as given (exogenous) and examines whether firms with higher stock-based compensation induce the manager to voluntarily disclose his private information. Firms that use more incentive-based compensation contracts for their employees and executives have incentives to increase price efficiency because a more efficient stock price would decrease contracting costs. In addition, risk-averse managers whose wealth is tied to the value of the firm have incentives to control price volatility (Lambert et al., 1991), and to correct any perceived undervaluation. Managers can achieve this goal by providing explanations of the firm's

current performance and future prospects through voluntary disclosures. Therefore, we expect managers with high equity incentives to voluntary disclose their private information in order to reduce their risks.

The second hypothesis takes voluntary disclosures as given (exogenous) and examines the effect of voluntary disclosures on the compensation contract. This hypothesis draws from arguments and findings in the corporate governance literature. The main argument in the literature is that a high level of information asymmetry (and thus monitoring difficulties) requires the implementation of more powerful (and possibly more costly) corporate governance mechanisms to help align managers and shareholders interests (LaPorta et al., 1998). Bushman et al. (2000), using a sample of large public corporations, find evidence suggesting that firms with less informative financial statements substitute more costly governance mechanisms, such as more powerful equity incentives, to compensate for their less useful accounting numbers. This is because sound financial disclosure diminishes agency problems by bridging the information asymmetry gap between insiders and outsiders. In turn, we argue that by reducing information asymmetry, a commitment to more transparent disclosures enables direct monitoring and therefore substitute for the need of high equity incentives. Hence, the second hypothesis is analogous to the substitutability argument of Bushman et al. (2000). We hypothesize that firms can substitute costly equity incentives by committing to more forthcoming voluntary disclosure policies.

Managerial incentive contracts and disclosure policies are endogenous and are modeled as a system of simultaneous equations. The model resembles a demand-supply specification, and can take similar interpretation. So, an alternative interpretation of the

first hypothesis is that managers with higher stock-based compensation have incentives to supply private information to the capital market while an alternative interpretation of the second hypothesis is that in firms with lower equity incentives shareholders will demand more voluntary disclosures in order to satisfy their monitoring needs.

In our tests we considered a sample of firms that commit to using quarterly conference calls as part of their communication policy between 1995 to the first quarter of 1999. A firm's compensation policy is proxied by the manager's portfolio of equity incentives. The measure used is the sensitivity of a managers' portfolio of restricted stock and stock options to 1% change in stock price, as suggested by Core and Guay (2002), and Lambert et al. (1991).

The empirical findings provide support for the second hypothesis and the focus of this part of the study. More specifically, we showed that conference calls are negatively associated with the level of equity incentives, suggesting that more transparent firms can substitute for the need to use more powerful equity incentives.

The study contributes to the voluntary disclosure and corporate governance literature in several ways. To our knowledge this is the first study that examines the relation between equity incentives and voluntary disclosures in a simultaneous equations setting. Also, it is the first study that separately addresses demand and supply factors affecting voluntary disclosures. Finally, the study contributes to the corporate governance literature by showing that voluntary disclosures may substitute for more costly governance mechanisms.

Hypotheses Development

The separation of ownership and control in modern organizations gives rise to incentive problems and conflicts of interest referred to as the agency problem (Jensen and

Meckling, 1986). The agency problem arises from the information asymmetry between managers and capital providers and managers incentives to take actions that maximize their utility instead of the financiers return on investment. The problem may manifest itself in a number of ways, including direct transfer of wealth (e.g., Enron), sub-optimal investment of capital, and managerial perquisite consumption. Internal and external control mechanisms are means to control agency conflicts and to protect investors from insider expropriation.

Financial information, both mandatory and voluntary, provides an important input into various governance mechanisms and helps alleviate the agency problem. In the previous chapter, we showed that firms with higher percentage of outside directors and institutional investors are more likely to use conference calls. The evidence is consistent with the argument that outsiders require more information to perform their monitoring role. Holland (1998) reported that private and semi-public meetings enable institutional investors to increase their monitoring role and challenge managers on strategy decisions. A large part of the meeting is devoted to information regarding the quality of management, strategy and its coherence, corporate succession and institutional investors' requirements in terms of corporate governance and financial performance. Thus, the evidence suggests that conference calls enable direct monitoring by reducing the information asymmetry between insiders and outside investors.

In this chapter we examine the relation between conference calls and equity incentives. Managerial compensation contracts are significant part of the internal control mechanisms and play an important role in mitigating agency problems. Over the last decade equity incentives via stock-based compensation have become a very important

feature of the contracting environment between shareholders and executives. Equity incentives help alleviates agency problems by tying the executive's wealth on firm performance. However, equity compensation is a costly governance mechanism because risk is imposed on a risk-averse manager and the manager must be paid a premium to compensate for this risk.

The first hypothesis examines whether firms with higher stock-based compensation induce the manager to voluntarily disclose his private information. Firms that use more incentive-based compensation contracts for their employees and executives have incentives to increase price efficiency because a more efficient stock price would decrease contracting costs. In addition, risk-averse managers whose wealth is tied to the value of the firm have incentives to control price volatility (Lambert et al., 1991), and to correct any perceived undervaluation. Managers can achieve this goal by providing explanations of the firm's current performance and future prospects through voluntary disclosures. Therefore, we expect managers with high equity incentives to voluntary disclose their private information in order to reduce their risks.

A similar argument is made by Nagar et al. (2003), who show that firm's disclosures as measured by management earnings forecast frequency and analysts' subjective ratings of disclosure practice (AIMR scores) are positively related to the proportion of CEO compensation affected by stock price as well as the value of shares held by the CEO. In turn, we expect CEOs with higher equity incentives to be more likely to host conference calls because voluntary disclosures can help reduce their risks and improve contract efficiency. The following hypothesis summarizes our expectations.

- **Hypothesis 7:** CEOs with higher equity-incentives are more likely to host conference calls.

The second hypothesis examines the effect of voluntary disclosures on the compensation contract. We hypothesize that by enhancing the efficiency of direct monitoring by institutional investors and the boards of directors, conference calls reduce agency costs and can substitute equity incentives as a control mechanism. A recent paper by Bushman et al. (2000) conjectures that firms whose accounting numbers do a poor job in capturing the current value relevant information will substitute into more costly corporate governance mechanism to compensate for the information inadequacies. More specifically, they showed that firms with lower timeliness of earnings have more costly and powerful corporate governance mechanisms, as measured by the board of directors' composition, size and compensation, the CEO's equity incentives, and the concentration of stock ownership by outside shareholders.

Our second hypothesis is analogous to the substitution argument of Bushman et al. (2000). We argue that conference calls reduce information asymmetry and in turn substitute for the need to implement more costly governance mechanisms (i.e., imposing more risk on a risk-averse agent through equity incentives). The following hypothesis summarizes our expectations.

- **Hypothesis 8:** Conference calls are negatively correlated with the level of CEOs equity incentives.

In both the above cases the null hypothesis is that compensation contracts and voluntary disclosures policies are not related but they are endogenously determined given a firm's primitive characteristics, like growth opportunities and information asymmetry.

Research Design

The focus of the study is to examine relations between voluntary disclosures and equity incentives. Since voluntary disclosure policies and compensation contracts are

endogenous, a simultaneous equation model emerges, with the difference that one of the dependent variables is latent and unobserved. We follow Heckman (1978), and formulate the model as follows:

$$\psi_1^* = \beta_1 \psi_2^* + \beta_2 X_1 + \beta_3 \psi_1 + u_1 \qquad (5\text{-}1)$$

$$\psi_2^* = \gamma_1 \psi_1^* + \gamma_2 X_2 + \gamma_3 \psi_1 + u_2 \qquad (5\text{-}2)$$

subject to,

$$\psi_1 = 1 \text{ if } \psi_1^* > 0 \text{ and } \psi_1 = 0 \text{ otherwise} \qquad (5\text{-}3)$$

where, ψ_2^* is an observable continuous variable which, in this study, takes the value of portfolio equity incentives, ψ_1^* is an unobservable latent variable assumed to be the quality of information disclosed, ψ_1 takes the value of "1" if the information quality is higher than "0", which is the occurrence of conference calls. Finally, X_1 and X_2 are vectors of m_1 and m_2 exogenous variables assumed to be independent of the disturbance terms u_1 and u_2. The disturbance terms are assumed to be jointly normally distributed, with mean zero and a positive definite variance matrix $\Sigma = [\sigma]$. In this study, we are also assuming that $\beta_3 = \gamma_3 = 0$.

Given the peculiarities of this system, it is important to address some of the assumptions and limitations of this formulation. The first assumption is that firms that decide to provide higher quality of voluntary disclosures host conference calls. Given the findings of prior research on conference calls, and the results presented in chapter 3 of this study, we do not believe this to be a restrictive assumption.

The second assumption is that conference calls per se, that is, the particular venue of voluntary disclosures does not affect compensation ($\gamma_3 = 0$) and only the latent variable, information quality, enters the compensation equation. It is, however, possible that

managers hosting conference calls will require additional compensation for the disutility of preparing for and being questioned during these calls. Therefore, we are assuming that if this is the case then managers will be compensated with higher cash compensation and not necessarily with higher stock-based compensation.

It is also possible that the availability of conference calls, through technological progress, affects the supply of information. That is the dummy variable affects the behavior and it is not just a constraint on the information available ($\beta_3 \neq 0$). Estimating a model where the dummy variable affects both compensation and information quality variable, however, presents consistency and identification problems (Heckman, 1998).

By rewriting equation (5-1) with ψ_1^* on the left hand side, it is easy to see how the system can take a demand-supply interpretation. The first equation captures the supply of voluntary disclosures. The prediction is that executives with higher equity compensation have incentives to supply voluntary disclosures ($\beta_1 > 0$). The second equation captures the demand for voluntary disclosures. The prediction is that investors will demand higher quality of voluntary disclosures in firms where the managers' equity incentives are low ($\gamma_1 < 0$).

To estimate the system of equations we follow the two-stage procedure suggested by Maddala (1973), and Nelson and Olson (1978). More specifically, in the first stage, we regress each endogenous variable on all exogenous variables (reduced form). In the second stage, equations (5-1) and (5-2) were separately estimated with the right hand side endogenous variable replaced by its fitted value from the first stage regression.[1]

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[1] See Maddala (1983) and Nelson and Olson (1978).

Regression Specification

The model for the information quality disclosed is:

$$
\begin{aligned}
Infoqual^* = {} & \delta_0 + \delta_1 lnportinc_{it} + \delta_2 gscore_{it} + \delta_3 outdir_{it} + \delta_4 ndir_{it} + \delta_5 inpct_{it} \\
& + \delta_6 numanal_{it} + \delta_7 nseq_{it} + \delta_8 inta_{it} + \delta_9 stdroa_{it} + \delta_{10} salesgrowth_{it} \\
& + \delta_{11} bm_{it} + \delta_{12} rd_{it} + \delta_{13} stdret_{it} + \delta_{14} equity_{it} + \delta_{15} debt_{it} + \delta_{16} lnmv_{it} \\
& + \delta_{17} lit_{it} + \delta_{18} IndustryControls_{it} + \delta_{19} yearControls_{it} + \varepsilon_{it}
\end{aligned} \tag{5-4}
$$

The asterisk (*) specifies that information quality is a latent, unobservable variable.[2] The assumption is that if information quality disclosed is greater than a hurdle then conference calls are observed. Therefore, the above equation can be estimated using a probit model where hosting, or not hosting, conference calls is the dependent variable.

The model for the level of equity incentives is summarized as:

$$
\begin{aligned}
lnportinc_{it} = {} & \phi_0 + \phi_1 infoqual^*_{it} + \phi_2 gscore + \phi_3 outdir_{it} + \phi_4 ndir_{it} + \phi_5 inpct_{it} \\
& + \phi_6 lnmv_{it} + \phi_7 lnstdret_{it} + \phi_8 bm_{it} + \phi_9 ceoten_{it} + \phi_{10} cashcon_{it} \\
& + \phi_{11} divcon_{it} + \phi_{12} IndustryControls_{it} + \delta_{13} yearControls_{it} + \varepsilon_{it}
\end{aligned} \tag{5-5}
$$

We use the one year approximation procedure suggested by Core and Guay (2002) to measure the overall CEO portfolio equity incentives in a given year. Portfolio equity incentives are measured as the sensitivity of the CEO's total portfolio of stock and stock options to 1% change in price ("portinc"). Details of the calculation of this variable are in Appendix.[3] The variable proxies for the dollar change in the value of CEO's stock and

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[2] Since "infoqual" is a latent variable, (5.4) was estimated using probit both in the first and the second stage.

[3] To proxy for the stock options expected volatility we used the 60 month stock price volatility variable provided by execucomp instead of the beta adjusted stock return volatility used by Core and Cuay (1999). Despite this simplification we were able to replicate Core and Guay (1999) using their time period.

option portfolio for a percentage change in firm value. An alternative measure is to use the percentage of CEO's ownership which proxies the dollar change in the value of a CEO's portfolio for a dollar change in firm value. Baker and Hall (1998) provide a discussion of the benefits and limitations of each proxy.[4]

The fundamental reason for the use of equity incentives is to align the interests of shareholders and managers by tying executive wealth to stock performance. Because executive effort is unobservable, compensation risk is imposed on executives in order to motivate them to take actions that are in the best interest of the shareholders. Therefore, we expect that portfolio equity incentives will be more important in firms with higher monitoring difficulties and consequently higher agency costs.

To control for other determinants of portfolio incentives, we include several control variables suggested by prior research to affect managerial ownership and the level of equity incentives. We also include a number of control mechanisms to capture the interaction among different corporate governance mechanisms. For example, a firm's corporate charter and bylaws are likely to affect the structure of a CEO's compensation contract. Therefore, we include the "gscore" of Gompers et al. (2003) in the equity incentives regression to capture this effect. Similarly, the composition of the board of directors and institutional ownership is also likely to affect the structure of the compensation contract. Thus, we include the percentage of outside directors ("outdir"), the total number of directors ("ndir") and the percentage of institutional ownership ("inpct") in the equity incentives regression. There is no prior research on the effect of

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[4] The results do not change when we use the percentage of a CEO's ownership.

these governance mechanisms on the level of equity incentives and we do not make any predictions on the direction of the association.

Prior research shows that firm size is positively related to incentive compensation (Demsetz and Lehn, 1985; Smith and Watts, 1992). Larger firms require more talented executives and are more difficult to monitor, making incentive compensation more important for these firms. Following prior research we proxy for firm size using the logarithm of the market value of equity ("lnmv").[5]

Similarly, firms operating in noisier environments are more difficult to monitor. Because of these higher monitoring costs, firms in noisier environments are more likely to use incentive-based compensation in order to align the interests of managers and shareholders (Demsetz and Lehn, 1985). We use the logarithmic transformation of idiosyncratic risk as a proxy for noise ("lnstdret"). We measure idiosyncratic risk as the standard deviation of 36-month market adjusted cumulative returns, and expect this variable to be positively related to incentive compensation.

Firms with abundant investment opportunities have a range of possible investment decisions known fully only to the top management and the CEO. In these firms, it is very difficult for shareholders to monitor CEO's actions, and they are more likely to rely on stock-based compensation to align the CEO's incentives (Smith and Watts, 1992). Furthermore, shareholders want their risk-averse CEOs to accept risky, and value increasing investment projects, and are more likely to rely on option plans to motivate such behavior. We measure growth opportunities (inversely) using the book-to-market ratio ("bm") as the ratio of book value of assets to the sum of market value of equity and

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[5] Results don't change when we use the logarithm of sales or total assets.

book value of liabilities and expect that firms with lower book-to-market ratio will have higher equity incentives.

As CEOs approach retirement, they may be inclined to forgo value-increasing projects because such expenditures are more likely to reward the successor CEO. To mitigate this "horizon problem", firms with CEOs nearing retirement are more likely to increase equity incentives (Dechow and Sloan, 1991). We use the logarithm of CEO tenure as a proxy for the horizon problem and we expect it to be positively related to equity incentives ("ceoten").

Firms may substitute stock option compensation for cash compensation if they are cash constrained, or in order to avoid financial reporting costs (Yermark, 1995). This is because, unlike cash compensation, stock options require no contemporaneous cash payout, and they are only disclosed in the footnotes of the financial statements. We follow Core and Guay (1999) and measure the degree of cash shortfall ("cashcon") as the three-year average of [(common and preferred dividends -cash flow from investing activities-cash flow from operations)/total assets]. To proxy for financial reporting costs, we follow Dechow et al. (1996) and categorize a firm as dividend constrained ("divcon") if [(retained earnings +cash dividends and repurchases during the year)/prior year's cash dividends and stock repurchases)] is less than two in any of the previous three years, or if the denominator is zero for all three years. Firms that are dividend constrained are assumed to be more concerned with debt covenant violations and thus, more likely to use stock-based compensation.

Finally, we include industry and year indicator variables to control for industry and year effects. Industry controls are based on Fama and French industry classifications.

Sample Selection and Description

We obtained conference call data from Thomson Financial First Call, an information provider to institutional investors. First Call maintains a dataset of daily conference call schedules from 1995 to 2004, which we used to identify firms hosting conference calls.

As in the previous chapters we restricted the sample to the period from 1995 through the first quarter of 1999. We captured the long-term commitment to voluntary disclosures by assigning firms into the conference calls sub-sample if they hold at least six quarterly conference calls over the sample period.

We obtained data on CEO option and stock holdings, annual option and restricted stock grants from Standard and Poor's Execucomp database. Information on board characteristics is obtained from Compact Disclosure. The database provides information on board of directors collected from proxy statements. Institutional holdings data are obtained from Spectrum and the Gompers et al. (2003) "gscore" is obtained from IRRC. Stock return data are collected from the CRSP database, and financial information from Compustat. All variables are defined in the appendix.

Firms with missing observations on any of the control variables are excluded from the sample. We avoided problems with outliers by winsoring all the control variables at the 1% and 99% level. The final sample consists of 2,762 firm-years. A total number of 1,161 observations are conference call firms, representing 42% of the sample, and 1,601 observations are related to control firms.

Table 5-2 presents summary statistics on the whole sample and Tables 5-3 to 5-4 present summary statistics by conference call classification. Comparing Tables 5-3 and 5-4, we see that conference call firms have higher equity-based incentives than non

conference call firms. The median change in CEO wealth from a 1% change in stock price is $247,000 for conference call firms and $134,000 for non conference call firms. Also, conference call firms appear to be larger, with higher percentage of institutional ownership and analyst following. The median market value of equity for conference call firms is about $2 billion compared to $738 million for non conference call firms. The median institutional ownership is 62% for conference call firms and 52% for non conference call firms, and the median number of analysts following is 11 for the conference call sample and 7 for the non conference call sample. The median gscore, the percentage of outside directors and the total number of directors are similar for both groups. The median gscore is -9, the median percentage of outside directors is 76%, and the median number of directors is 9.

Table 5-5 presents Pearson (Spearman) pairwise correlations above (below) the diagonal between the governance variables and the conference call indicator variable. The conference call dummy is positively related to the level equity incentives and the percentage of institutional ownership, consistent with the notion that conference calls are complement governance mechanisms. The level of equity incentives is negatively related to the percentage of outside directors and positively related with the gscore and the percentage of institutional ownership. This is consistent with prior evidence suggesting that institutional investors were pushing for higher level of equity incentives. Also, the evidence suggests that board of directors' monitoring substitutes for the need for higher level of equity incentives. The gscore is negatively related to the percentage of outside directors and the total number of directors suggesting that these measures serve as substitutes in disciplining the manager.

Overall, the evidence in Tables 5-1 and 5-2 show that the level of equity incentives and conference call activity are positively related, suggesting that, in a univariate setting, they are complement governance mechanisms. However, the findings should be interpreted with caution because these tests do not control for all factors that may affect the variables of interest.

Empirical Results

Assuming Policies are Exogenous

For comparison purposes, we first present multivariate analysis assuming that voluntary disclosures and equity incentives are exogenous. Table 5-6 presents the results from a probit regression of the firm's conference call decision on corporate governance mechanisms and control variables. The model's pseudo r-square is 22 % and is comparable to previous studies. The coefficient on the level of equity incentives is negative but not statistically significant. The coefficients on gscore and the percentage of outside directors are both positive and statistically significant at 5% and 10% one-sided level, respectively. The coefficient on the number of directors is negative and statistically significant, and the coefficient on percentage of institutional ownership is positive and statistically significant. Also, the evidence suggests that larger firms, and firms that seek external financing, are more likely to hold conference calls. The coefficients on the natural logarithm of market value of equity and future equity and debt issuance are positive and statistically significant.

In general, the results are similar to the findings in chapter 4. We do not find any evidence suggesting that managers with higher equity incentives are more likely to use conference calls. To the contrary, the results suggest that the level of equity incentives is negative but not statistically significant with conference call activity. The evidence does

not support Nagar (1999) who shows that executives with higher stock-based compensation are more likely to issue earnings forecasts. However, it is likely that the incentives for management earnings forecasts are different from the incentives for conference calls.

Table 5-7 presents the results of an ordinary least squares estimation of the level of equity incentives on corporate governance variables and control variables. The model explains 58% of the variation in the level of equity incentives and is comparable to prior studies. The coefficient on the conference call dummy is negative and statistically significant at the 5% two-tailed test. The evidence suggests that conference calls enable direct monitoring and substitute for equity incentives (as a governance mechanism). The coefficients on the number of directors and percentage of institutional ownership are both negative and statistically significant. The evidence suggests that institutional monitoring substitutes equity incentives, while board monitoring complements equity incentives as governance mechanisms. Finally, all the control variables are statistically significant and of the predicted sign. The coefficients on the natural logarithm of market value and standard deviation of returns are positive as predicted by Demsetz and Lehn (1985). Similarly, the coefficients on growth opportunities and CEO tenure are positive, consistent with the findings of Smith and Watts (1992). Finally, equity incentives are positively associated with the proxies for cash shortfall and dividend constrains, consistent with the evidence provided by Yermark (1995) and Dechow et al. (1996) respectively.

Overall, the evidence provides support for the second hypothesis of this study. A commitment to more transparent disclosures enables direct monitoring by reducing

information asymmetry , and thereby substituting for the need of high equity incentives. This result is novel to the voluntary disclosure literature. To the extent that equity incentives is a costly governance mechanism, as suggested by prior research, voluntary disclosures can contribute to firm value by enabling direct monitoring and substituting for more costly governance mechanisms.

Simultaneous Equations

Voluntary disclosure policies and compensation policies are endogenously determined by shareholders in order to maximize firm value. It is therefore likely that the results presented in the previous section suffer from simultaneity bias. In order to alleviate this problem, we estimate models (5-4) and (5-5) using a system of simultaneous equations. Table 5-8 presents the results of the logistic regression of conference calls on corporate governance and control variables, replacing equity incentives with its instrument from the reduced form regression. The models pseudo R-square is 22% and comparable with prior studies. The coefficient on the level of equity incentives is positive but not statistically significant. So, after controlling for the simultaneity bias we find no evidence suggesting that executives with higher equity incentives are more likely to use conference calls. The coefficients on all other variables are similar to the results presented in Table 5-6 of this chapter and the previous chapter.

Table 5-9 presents the results of an ordinary least squares estimation of the level of equity incentives on corporate governance variable and control variables, replacing the conference call dummy with its instrument from the reduced form regression. The model explains 58% of the variation in the level of equity incentives and is comparable to prior studies. The coefficient on the conference call dummy is negative and statistically significant after controlling for the simultaneity bias. The evidence is consistent with the

second hypothesis of the study and suggests that conference calls substitute for equity incentives. The only difference from the results presented in Table 5-6 is that the coefficient on the conference call variable is statistically significant at the 1% level rather than the 5% level in Table 5-3, while the coefficient on the percentage of institutional ownership is no longer statistically significant. The coefficients on all other variables are similar to the results presented in Table 5-7 and are consistent with prior research.

Overall, the results presented in Tables 5-6 to 5-9 are consistent with the second hypothesis but do not support the first hypothesis. We find no evidence suggesting that executives with higher equity incentives are more likely to use conference calls. The evidence suggests that conference calls enable direct monitoring and substitute for equity incentives.

Robustness Tests

We perform several analyses to check the robustness of the results. To ensure that the results are not sensitive to extreme observations we re-estimate the regressions after removing outliers using different techniques suggested by Belsley, Kuh, and Welsch (1980). The results still hold and do not seem to be influenced by extreme observations. We also performed the analysis using the average equity incentives of the top five executives instead of just the CEO of the firm. The results are qualitatively similar and are not reported. In order to ensure that the proxy for equity incentives used in the study is not driving the results we re-estimate the regressions using the CEO's percentage ownership as a dependent variable. The results, again, seem to be robust to this specification.

As a final robustness test, we take the averages of all the independent variables over the sample period (years 1995 to 1999) and performed the same analysis using

unique firms instead of firm-years. This test is used to account for the use of multiple observations for the same firm in the pooled regressions. The results from this test are generally consistent with the results presented in the main analysis and are not reported.

Conclusions

In this chapter we examine the relation between voluntary disclosures and the level of equity incentives. We use the one-year approximation procedure suggested by Core and Guay (1999) to measure the overall CEO portfolio equity incentives in a given year. Voluntary disclosure policies are proxied by conference calls. The study argues that there are both supply and demand factors affecting a firm's voluntary disclosure policies. We hypothesize that CEO's with high equity compensation have incentives to supply voluntary disclosures in order to improve contract efficiency or to control price volatility. We also hypothesize that firms can substitute costly corporate governance mechanisms with more forthcoming disclosure policies.

In order to control for the simultaneous determination of incentive compensation and voluntary disclosure policies, we tested the predictions using a simultaneous system of equations where both incentive-based compensation and voluntary disclosure policies are assumed to be endogenous. The results are largely consistent with the second hypothesis of this study. More specifically, we showed that conference calls are negatively associated with the level of equity incentives, after controlling for a number of control variables suggested by prior research to affect equity incentives. The evidence suggests that by reducing information asymmetry, conference calls enable direct monitoring and substitute for more costly governance mechanisms.

The study contributes to the voluntary disclosure literature and the executive compensation literature. To our knowledge this is the first study that examines the

relation between voluntary disclosures and equity incentives. The evidence suggests that voluntary disclosures may contribute to firm value by increasing the efficiency of certain corporate governance mechanism and substituting for more costly control mechanisms (e.g., equity incentives). The evidence also suggests that the level of equity incentives is consistent with theoretical predictions linking performance evaluation with information asymmetry. More specifically, the evidence suggests that the level of equity incentives is lower for conference call firms where information asymmetry between insiders and outsiders is lower.

Finally, the results in this study should be interpreted with caution. The formulation assumes that we controlled for all other determinants of equity compensation and conference calls, and it is possible that correlated omitted variables may be driving the findings of the study. The formulation also assumes that the only endogenous variables in the model are conference calls and equity compensation. One can argue that board of directors' composition and a firm's financing activities are also endogenous variables. We tried to mitigate for this bias by measuring control variables at the beginning of the year. The proper formulation, however, is to estimate a system of four equations and use the instruments for each endogenous variable. It is, therefore, possible that the instruments used for voluntary disclosure quality and incentive compensation are biased and this bias drives the results. Given the problems mentioned above, the results should be interpreted as simple associations. In future work, we plan to test the above hypotheses using different research designs in order to mitigate some of the problems of the two stage estimation procedure and to further examine the robustness of the findings.

Table 5-1. Variable measurement

lnportinc	Portfolio incentives are measured as the natural logarithm of the sensitivity of the CEO's total portfolio of stock and stock options to 1% change in price.
lnmv	Logarithm of market value of equity.
lnstdret	Standard deviation of returns, measured as the standard deviation of 36-months market adjusted stock returns prior to the fiscal year
bm	The ratio of book value of assets to the sum of market value of equity and book value of liabilities
ceoten	The logarithmic of CEO tenure
cashcon	Three year average of [(common and preferred dividends -cash flow from investing activities-cash flow from operations)/total assets]
divcon	1 if [(retained earnings +cash dividends and repurchases during the year)/prior year's cash dividends and stock repurchases)] less than 2.

Table 5-2. Descriptive statistics for the sample firms

Variable	N	Mean	Std Dev	Q1	Median	Q3
lnportinc	2762	5.154	1.608	4.205	5.154	6.202
port_inc	2762	1116.930	13370.190	67.024	173.125	493.507
mv	2762	5433.710	17926.770	432.745	1115.030	3477.170
stdret	2762	0.089	0.042	0.058	0.079	0.109
bm	2762	0.616	0.251	0.428	0.616	0.800
ceoten	2762	9.216	8.520	3.000	7.000	12.000
cashcon	2762	0.018	0.120	-0.042	0.008	0.066
divcon	2762	0.424	0.494	0.000	0.000	1.000
ccall	2762	0.420	0.494	0.000	0.000	1.000
gscore	2762	-9.034	2.822	-11.000	-9.000	-7.000
outdir	2762	0.678	0.273	0.625	0.778	0.857
ndir	2762	8.721	3.786	7.000	9.000	11.000
inpct	2762	0.558	0.183	0.443	0.575	0.697
numanal	2762	10.230	7.195	5.000	9.000	14.000
nseq	2762	1.984	1.356	1.000	1.000	3.000
inta	2762	0.099	0.130	0.000	0.050	0.151
stdroa	2762	0.016	0.019	0.006	0.010	0.019
sgr	2762	1.137	2.225	0.201	0.569	1.261
cumret	2762	0.217	1.366	-0.291	-0.044	0.336
rd	2762	0.031	0.059	0.000	0.000	0.037
equity	2762	0.125	0.331	0.000	0.000	0.000
debt	2762	0.647	0.478	0.000	1.000	1.000
lit	2762	0.258	0.437	0.000	0.000	1.000

All variables are defined in Tables 4-1 and 5-1.

Table 5-3. Descriptive statistics for conference call sample

Variable	N	Mean	Std Dev	Q1	Median	Q3
lnportinc	1161	5.537	1.496	4.616	5.510	6.473
port_inc	1161	1929.180	20446.060	101.093	247.265	647.209
mv	1161	7428.270	19839.340	748.108	2005.370	5276.260
stdret	1161	0.088	0.039	0.060	0.079	0.108
bm	1161	0.576	0.245	0.388	0.574	0.741
ceoten	1161	9.235	8.430	3.000	7.000	12.000
cashcon	1161	0.014	0.108	-0.044	0.008	0.069
divcon	1161	0.425	0.495	0.000	0.000	1.000
ccall	1161	1.000	0.000	1.000	1.000	1.000
gscore	1161	-9.079	2.777	-11.000	-9.000	-7.000
outdir	1161	0.679	0.280	0.625	0.778	0.857
ndir	1161	8.790	3.902	7.000	9.000	12.000
inpct	1161	0.613	0.153	0.520	0.621	0.722
numanal	1161	12.731	7.511	7.000	11.000	17.000
nseq	1161	2.028	1.429	1.000	1.000	3.000
inta	1161	0.104	0.126	0.001	0.057	0.157
stdroa	1161	0.016	0.017	0.006	0.010	0.019
sgr	1161	1.201	2.198	0.255	0.636	1.374
cumret	1161	0.304	1.579	-0.242	0.022	0.404
rd	1161	0.034	0.053	0.000	0.011	0.044
equity	1161	0.110	0.313	0.000	0.000	0.000
debt	1161	0.637	0.481	0.000	1.000	1.000
lit	1161	0.331	0.471	0.000	0.000	1.000

All variables are defined in Tables 4-1 and 5-1.

Table 5-4. Descriptive statistics for control sample

Variable	N	Mean	Std Dev	Q1	Median	Q3
lnportinc	1601	4.876	1.630	3.841	4.903	5.937
port_inc	1601	527.907	2137.810	46.587	134.654	378.844
mv	1601	3987.310	16254.940	344.645	738.588	2351.550
stdret	1601	0.089	0.043	0.057	0.079	0.110
bm	1601	0.645	0.251	0.459	0.659	0.831
ceoten	1601	9.203	8.588	3.000	7.000	12.000
cashcon	1601	0.022	0.127	-0.039	0.008	0.062
divcon	1601	0.424	0.494	0.000	0.000	1.000
ccall	1601	0.000	0.000	0.000	0.000	0.000
gscore	1601	-9.001	2.854	-11.000	-9.000	-7.000
outdir	1601	0.677	0.267	0.600	0.769	0.857
ndir	1601	8.671	3.701	7.000	9.000	11.000
inpct	1601	0.517	0.192	0.383	0.523	0.663
numanal	1601	8.415	6.371	4.000	7.000	12.000
nseq	1601	1.952	1.300	1.000	1.000	3.000
inta	1601	0.096	0.133	0.000	0.041	0.145
stdroa	1601	0.017	0.020	0.005	0.010	0.018
sgr	1601	1.091	2.244	0.163	0.511	1.199
cumret	1601	0.155	1.185	-0.325	-0.077	0.255
rd	1601	0.030	0.063	0.000	0.000	0.029
equity	1601	0.136	0.342	0.000	0.000	0.000
debt	1601	0.655	0.475	0.000	1.000	1.000
lit	1601	0.205	0.404	0.000	0.000	0.000

All variables are defined in Tables 4-1 and 5-1.

Table 5-5. Pearson (Spearman) correlation coefficients

	ccall	lnporinc	gscore	outdir	ndir	inpct
ccall	1.0000	0.2030	-0.0138	0.0020	0.0154	0.2590
		<.0001	0.4699	0.9158	0.4174	<.0001
lnporinc	0.2019	1.0000	0.0510	-0.0734	0.0078	0.2101
	<.0001		0.0073	0.0001	0.6828	<.0001
gscore	-0.0144	0.0444	1.0000	-0.1603	-0.2197	-0.1212
	0.4508	0.0196		<.0001	<.0001	<.0001
outdir	0.0255	-0.1074	-0.2311	1.0000	0.6815	0.0104
	0.1801	<.0001	<.0001		<.0001	0.5850
ndir	0.0206	-0.0084	-0.2618	0.5233	1.0000	-0.0142
	0.2789	0.6582	<.0001	<.0001		0.4553
inpct	0.2492	0.1700	-0.1161	0.0372	-0.0154	1.0000
	<.0001	<.0001	<.0001	0.0509	0.4192	

Pearson (Spearman) coefficients above (below) the diagonal. All variables are defined in Tables 4-1 and 5-1.

Table 5-6. Logistic regression examining the impact of the level of equity incentives on the likelihood of conference call occurrence

Parameter	Predicted Sign	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > ChiSq
intercept	?	-1.815	0.333	29.694	<.0001
lnportinc	+	-0.032	0.024	1.696	0.193
gscore	+	0.019	0.010	3.337	0.068
outdir	+	0.222	0.139	2.539	0.111
ndir	-	-0.028	0.011	6.529	0.011
inpct	+	0.810	0.173	22.025	<.0001
numanal	+	0.026	0.006	19.202	<.0001
nseq	+	0.005	0.023	0.039	0.844
inta	+	-0.417	0.248	2.824	0.093
stdroa	+	0.129	1.742	0.006	0.941
sgr	-	-0.020	0.014	2.012	0.156
cumret	-	0.002	0.021	0.008	0.927
bm	-	0.134	0.159	0.707	0.401
rd	+	0.496	0.717	0.479	0.489
lnstdret	+	0.136	0.104	1.685	0.194
equity	+	0.186	0.087	4.581	0.032
debt	+	0.117	0.064	3.343	0.068
lnmv	+	0.252	0.040	39.097	<.0001
lit	+	0.169	0.138	1.500	0.221
R-Square		22.66%			
N		2762			

All variables are defined in Tables 4-1 and 5-1. Industry and year controls are included but not reported.

Table 5-7. Ordinary least squares of the effect of conference calls on the level of equity incentives

Variable	Predicted Sign	Parameter Estimate	Standard Error	t Value	Pr > |t|
intercept	?	2.141	0.199	10.760	<.0001
ccall	-	-0.096	0.045	-2.120	0.034
gscore	?	0.004	0.008	0.470	0.641
outdir	?	-0.116	0.105	-1.100	0.272
ndir	?	-0.024	0.008	-2.820	0.005
inpct	?	-0.257	0.128	-2.010	0.044
lnmv	+	0.622	0.020	30.530	<.0001
lnstdret	+	0.483	0.075	6.430	<.0001
bm	-	-1.276	0.106	-12.020	<.0001
lnceoten	+	0.412	0.020	20.230	<.0001
cashcon	+	0.394	0.172	2.280	0.022
divcon	+	0.251	0.050	5.020	<.0001
Adj R-Sq		58.19%			
N		2762			

All variables are defined in Tables 4-1 and 5-1. Industry and year controls are included but not reported.

Table 5-8. Logistic regression of the effect of equity incentives on conference calls controlling for simultaneity bias.

Parameter	Predicted Sign	Estimate	Standard Error	Wald Chi-Square	Pr > ChiSq
intercept	?	-1.969	0.400	24.291	<.0001
lnportinc	+	0.010	0.065	0.024	0.876
gscore	+	0.018	0.011	3.037	0.081
outdir	+	0.223	0.139	2.557	0.110
ndir	-	-0.027	0.011	5.856	0.016
inpct	+	0.829	0.173	22.870	<.0001
numanal	+	0.026	0.006	19.304	<.0001
nseq	+	0.003	0.023	0.015	0.903
inta	+	-0.423	0.248	2.899	0.089
stdroa	+	0.476	1.818	0.069	0.793
sgr	-	-0.022	0.014	2.297	0.130
cumret	-	0.002	0.021	0.006	0.936
bm	-	0.195	0.183	1.138	0.286
rd	+	0.554	0.721	0.589	0.443
lnstdret	+	0.107	0.113	0.893	0.345
equity	+	0.186	0.087	4.546	0.033
debt	+	0.110	0.065	2.912	0.088
lnmv	+	0.227	0.054	17.919	<.0001
lit	+	0.166	0.138	1.450	0.229
R-Square		22.61%			
N					

All variables are defined in Tables 4-1 and 5-1. Industry and year controls are included but not reported.

Table 5-9. Ordinary least squares examining the effect of conference calls on equity
incentives controlling for simultaneity bias

Variable	Predicted Sign	Parameter Estimate	Standard Error	t Value	Pr > |t|
intercept	?	2.011	0.203	9.900	<.0001
ccall	-	-0.967	0.283	-3.420	0.001
gscore	?	0.008	0.008	0.980	0.329
outdir	?	-0.022	0.109	-0.210	0.837
ndir	?	-0.034	0.009	-3.770	0.000
inpct	?	-0.096	0.138	-0.690	0.488
lnmv	+	0.717	0.037	19.530	<.0001
lnstdret	+	0.550	0.078	7.050	<.0001
bm	-	-1.178	0.111	-10.650	<.0001
lnceoten	+	0.412	0.020	20.240	<.0001
cashcon	+	0.393	0.172	2.290	0.022
divcon	+	0.252	0.050	5.040	<.0001
Adj R-Sq		58.31%			
N					

All variables are defined in Tables 4-1 and 5-1. Industry and year controls are included
but not reported.

CHAPTER 6
SUMMARY AND CONCLUSIONS

Our study presents an empirical analysis of the relation between a set of corporate governance mechanisms and the quality of voluntary disclosure practices, as proxied by conference call activity. Recent financial scandals suggest that agency costs and the efficacy of governance mechanisms are directly related to disclosure decisions and the propensity of managers to withhold or distort information. The study conjectures that effective governance structure helps alleviate agency costs and foster an environment of greater transparency. In addition, the study hypothesizes that an ex-ante commitment to more transparent disclosures enhances the effectiveness of both internal and external control mechanisms and enables conference calls to substitute for more costly control systems.

We tested the hypotheses using a sample of firms that commit to a policy of regular conference calls from 1995 to 1999. Empirical analysis yielded a number of interesting results. First, the study showed that initiations of (and commitment to use) conference calls are associated with decreases in long-term bid-ask spreads, and increases in institutional ownership, after controlling for confounding effects and simultaneity bias. The evidence is consistent with the idea that an ex-ante commitment to higher quality of financial disclosures is associated with less information asymmetry and higher stock liquidity.

Second, the study showed that firms with effective governance mechanism are more transparent. More specifically, firms with a smaller board size, a higher percentage

of outside directors on the board, a higher percentage of institutional ownership and more shareholder-empowering charter and bylaw provisions are shown to be more likely to use conference calls as part of their communication strategy. The results are consistent with the notion that governance mechanisms play an important role in a firm's communication policy, and that more effective governance in public corporations is associated with less information asymmetry between managers and shareholders.

Finally, conference call firms were shown to be negatively associated with the level of equity incentives needed to motivate managers, after controlling for simultaneity bias. Results suggest that conference calls reduce agency costs by enhancing the efficiency of direct control mechanisms and thereby substituting for more costly governance systems such as equity compensation.

Our study contributes to the voluntary disclosure literature in a number of ways. It furthers our understanding on the link between voluntary disclosures and corporate governance mechanisms. Relaxing the assumption that managers and shareholders incentives for voluntary disclosures are aligned, we showed that effective governance mechanisms play an important role in a manager's decision to disclose information. The evidence complements and extends previous studies on the relation between corporate governance and management earnings forecasts (Ajinkya et at., 2005; Karamanou and Vafeas, 2005). Our study also suggests that voluntary disclosures may contribute to firm value by increasing the efficiency of certain internal corporate governance mechanism (e.g., equity incentives).

Findings in this study have implications for the corporate governance and the compensation literature as well. The study suggests that effective governance structure

helps alleviate managers' incentives to withhold information. This role of governance structure has not been extensively examined by prior research. The evidence also suggests that the level of equity incentives is consistent with theoretical predictions linking performance evaluation with information asymmetry. Conference calls help lessen the information asymmetry between insiders and outsiders and are shown to be negatively related with the level of equity incentives.

The study points to a number of areas for further research. Prior research on corporate governance has examined the role of board composition and size, and institutional ownership on firm performance and on particular monitoring actions such as CEO turnover and takeovers. Examining the effect of the interaction between control mechanisms and conference calls on these actions can provide direct evidence of the governance role of voluntary disclosures.

The relation between conference calls and other voluntary disclosures, such as management earnings forecasts, press releases, or notes to the financial statements, is also an interesting avenue for future research. For example, firms may be using conference calls to substitute for other venues of voluntary disclosures. It is also possible that these same firms are just committed to a better communication with shareholders and are therefore more likely to issue earnings forecasts that are more accurate and less optimistically biased.

The trading behavior of insiders around conference calls is another promising area for future research. Managers with higher stock based compensation are more exposed to the risk of insider trading violations. Managers intending to trade their stock holdings

have incentives to host conference calls in order to reduce the risk of insider trading violations and to correct any perceived undervaluation.

The opportunistic role of conference calls has not been examined in this study. Managers can use conference calls to guide analysts' expectation downwards so as to meet or beat their earnings forecasts. Also, prior to reg-FD, managers could use their discretion over access to the conference call to elicit favorable research by analysts. Finally, evidence of significant trading profits by institutional investors can provide direct support of the arguments behind reg-FD.

The appendix describes the Core and Guay method of estimating the level of equity incentives. The following description is from Core and Guay (1999).

Estimates of the sensitivity of a stock option's value to changes in price are calculated based on the Black-Scholes (1973) formula for valuing European call options, as modified to account for dividend payouts by Merton (1973).

Option value = $[Se^{-dT} N(Z) - Xe^{-rT}N(Z - \sigma T^{(1/2)})]$,

The partial derivative of the Black-Scholes value with respect to stock price is expressed as:

∂(option value)/ ∂(price) = $e^{-dT}N(Z)$.

The sensitivity of stock option value with respect to a 1 % change in stock price is defined as:

Sensitivity of option value to stock price = $e^{-dT}N(Z)*(price*0.01)$.

Where,

- N=Cumulative probability function of the normal distribution

- Z= $[\log(S/X) + T(r - d + \sigma 2/2)]/\sigma T(1/2)$

- S=Stock price of the underlying stock at fiscal year end

- X=Exercise price of the option measured as described below.

- σ=Expected stock-return volatility measured as the 60 month price volatility obtained from execucomp

- r =Risk free rate for the options time to maturity obtained from St. Louis Federal Reserve bank

- T=Time to maturity measured as described below.

- d=Natural logarithm of expected dividend yield measured as dividend yield at year end.

The Core and Guay (1999) procedure allows researchers to accurately estimate the total value and sensitivities of an executives' stock option holdings. To do this, one needs the exercise price and maturity for all options in an executives' portfolio. Options are disclosed in three different categories in the proxy statements: (a) options granted during the current fiscal year, (b) unexercisable options, and (c) exercisable options. Most proxy statements provide the information necessary to calculate the Black-Scholes values for options granted in the current year. In order to calculate the Black-Scholes value of previous grants, a researcher needs the complete time series of proxy statements. However, Core and Guay (1999) provide a one year approximation method, described below, that can be implemented using information from the most recent proxy statement. The paper shows that the proxy explains more than 99% of the variation in option portfolio value and sensitivities obtain with the full information about the option portfolios. The following description is from Core and Guay (1999).

Obtain data on an executive's option portfolio from Execucomp on the most recent proxy statement:

1. Data on most recent year's grant: (i) number of options, (ii) exercise price, and (iii) time-to-maturity.

2. Data on previously granted options: (i) number of exercisable and unexercisable options outstanding, and (ii) current realizable value of exercisable and unexercisable options. To avoid double counting of the most recent year's grant, the number and realizable value of the *unexercisable* options is reduced by the number and realizable value of the current year's grant. If the number of options in the most recent year's grant exceeds the number of unexercisable options, the number and realizable value of the *exercisable* options is reduced by the excess of the number and realizable value of the current year's grant over the number and realizable value of the *unexercisable* options.

Compute the sensitivity of the executive's option portfolio to year-end stock price:

1. Most recent year's grant: compute Black-Scholes sensitivity to year-end stock price - all input parameters are readily available.

2. Previously granted options: (i) Compute average exercise price of exercisable and unexercisable options using current realizable value. The average exercise price is estimated as [year-end price - (realizable value/number of options)]. (ii) Set time-to maturity of unexercisable options equal to one year less than time-to-maturity of most recent year's grant (or nine years if no new grant was made); set time-to maturity of exercisable options equal to three years less than time-to-maturity of unexercisable options (or six years if no new grant was made). (iii) Compute Black-Scholes sensitivity to stock price. All remaining input parameters are readily available.

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BIOGRAPHICAL SKETCH

Adamos Vlittis was born in Dhekelia, Cyprus in 1975. After graduating from Paralimni High School in 1993, he joined the National Guard of Cyprus. He served at the rank of Second Lieutenant until 1995. He then attended the University of Cyprus, where (in 1999) he received his bachelor's degree in business administration with a concentration in accounting. After completing his bachelor's degree Adamos studied finance at Imperial College in London and received his master's degree in 2000, while gaining distinction for academic performance. Adamos joined the doctoral program in accounting at the University of Florida in 2000. He completed his Ph.D in December 2005.

I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation for the degree of Doctor of Philosophy.

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I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation for the degree of Doctor of Philosophy.

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